The Milroy Lectures

ON

THE CAUSES, PREVALENCE, AND CONTROL OF PULMONARY TUBERCULOSIS.

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LECTURE I.

Delivered on March 5th.

MR. PRESIDENT, FELLOWS, AND GENTLEMEN,—Allow me in the first place to express my appreciation of the high honour which the Royal College of Physicians has conferred upon me in appointing me Milroy lecturer for 1903. The subject which, with the approval of this College, I have selected may, I fear, be regarded by some as having been already adequately discussed. It is true that the subject of tuberculosis has on more than one occasion within recent years been exhaustively dealt with by lecturers before this College, and although it is now some 12 years since Dr. Arthur Ransome, F.R.S., delivered the Milroy Lectures on the Cause and Prevention of Phthisis he has since made a further valuable contribution to the subject in his Parkes Weber prize essay of 1897. In addition, too, to the vast store of information which has been brought directly before this College, there have been recently numerous other lectures and papers, all of which through e instrume ntality of the medical press have been rendered available to the profession. But, notwithstanding all this, I venture to think that there may be something still to be said upon the subject, even although it may amount in the particular instance to little more than a focussing of some of our present knowledge. In 1901 the British Congress on Tuberculosis was instrumental in bringing together important papers which have had the effect of arresting attention and which have already led to administrative action which may have very far-reaching consequences. Let me, however, say that in the three lectures which I shall have the honour of delivering I do not propose to travel again over the ground which has so often and so ably been traversed by my predecessors, and although in the expanded lectures I shall hope, for the sake of uniformity and completeness, to embody considerations as to the history, bacteriology, and pathology of the disease, I propose to confine myself for the present to a few points only; to questions, that is to say, which it will be well to bear in mind in dealing with this very difficult problem. It is important in the first place to obtain a general idea of what the prevention of tuberculosis means for the human species.

If we wish adequately to appreciate the extent to which the science of preventive medicine is guiding the voyager as he drifts across the ocean of human existence we may try to regard allegorically a generation of human beings passing before us. It is no concern of preventive medicine whence they come or whither they are going. All we are concerned with is the manner in which preventive medicine is influencing their passage so far as we are witnesses of the scene.

Let us picture to ourselves a long avenue with a broad entrance and a narrow exit. Over the portals of the gate of entry is written "The Gate of Birth" and over the portals of the gate of exit "The Gate of Old Age." The press of life passing into the avenue is great; that passing out by the "Gate of Old Age" is small. The majority of the travellers vanish by the way. They pass out, it will be seen on closer examination, by various by-paths, some large, some small. Over those by-paths which are near to the "Gate of Birth" there are inscribed the somewhat prosaic titles of "Infantile Diarrhœa," "Measles," "Convulsions," "Whooping Cough," &c., and into each of these side channels the children are seen to be straying in a ceaseless procession. By the gaps in the avenue leading to these by-paths there are no janitors stationed to head back the travellers into the central avenue which leads to the "Gate of Old Age." The strong keep in the main life-stream, the weak are edged out. We notice, too, that lower down the avenue are other and smaller gaps and over these are written such inscriptions as "Enteric Fever," "Typhus Fever," "Diphtheria," "Scarlet Fever," and "Small-pox," and the streams passing out at these other by-paths are smaller than those which we have just examined. Yet in and around these narrow gaps there are janitors stationed who are endeavouring, and at times with success, to head back the travellers into the central avenue. These janitors are the priests of preventive medicine and the onlooker is puzzled to understand why these priests are stationed at these narrow gaps and not at the wider gaps through which the majority are vanishing from the scene. And the onlooker's wonder increases as he passes along the avenue. He sees the travellers engaged in the toil of life and he notices that the work they are doing is not only supporting the workers themselves, but that it is helping to feed those who are pouring in by the "Gate of Birth," as well as those whose working capacity is low or lost and who are drifting quietly to the "Gate of Old Age." But in that part of the main avenue where the din of work is greatest there is seen to open out a broad side channel, almost as large, indeed, as the "Gate of Old Age" itself, and over the entrance thereto is inscribed "Pulmonary Tuberculosis," and down it the workers and the thinkers and the writers are drifting in a never-ending stream. And the onlooker who has seen the admirable service performed by the janitors at the gaps of "Small-pox," "Enteric Fever," and "Typhus Fever" fails to comprehend why there are no such officials stationed near the great exit of "Pulmonary Tuberculosis," more particularly as it appears that with a little timely aid at least some of those who are passing down this tuberculous channel might be turned back among the workers, even although thereafter their daily output might not be quite as great as when they first left the main stream. They might in effect rejoin the main life stream and if they did not eventually pass out by the last gate they might at least attain to side gaps lower down, not finally quitting the life stream until the most productive period of their journey was accomplished. I need not pursue the story further, as it is my intention to inquire how far the efforts of preventive medicine can divert the stream pouring into this tuberculous by-channel in such fashion that some of its waters may pass out into the ocean of the unknown by other, and to us, less interesting, channels.

Despite the efforts of preventive and curative medicine, of the fact that the average duration of life is tending to increase, and that specifics, pharmaceutical and antitoxic, are being found for certain maladies, it is inevitable that each traveller who enters through the "Gate of Birth" must emerge by one or other of the exits; and looked at purely in an economical sense it should be the aim of preventive medicine to close, so far as practicable, the earlier by-paths, to guide the traveller through the working period of life, and to take him, so far as may be practicable, on towards the "Gate of Old Age." What becomes of the traveller after he has passed the working and reproductive period of life is, in a purely economical sense, a matter of indifference; or rather, if we are to confine ourselves solely to the economic issues the death of the worker after his active period of life is passed is indicated. It is, of course, conceivable that the efforts of preventive medicine make less for the improvement than for the degeneration of the species, and that if science is to interfere at all with nature's scheme, it should do so rather by increasing the severity of life's struggle than by fostering the weakly. This is somewhat equivalent to the statement that civilisation is an error—i.e., that evolution itself is a mistake. Evolution has apparently conduced to the survival of a species full of sympathy for the weak, and if there is a phase of devolution at hand during which we are to go back upon this tendency and to suppress that which evolution has evolved, we shall have to regard sympathy as a useless superfluity to be classed with the vermiform appendix and other symbols of our lowly origin. But when this reversion towards animalism begins, medicine, whether curative or preventive, must also take its place side by side with the organs and organisations which are obsolete. But whatever may be nature's aim, neither preventive nor curative medicine has any concern with it. It is not the function of either one or the other to guide evolution as commonly

understood. Evolution may, in fact must, be left to take care of itself. Preventive medicine does not concern itself, save perhaps in relation to the generation next to follow, with the future of the race. Its object in my view is "to curtail and, if possible, to prevent, disease; to prolong existence and to render life happier by means of improved physical conditions." This is a sufficiently comprehensive ideal.

And now, gentlemen, having made our peace with evolution and mollified, let us hope, those who see no use in the perpetuation of the unfit or in healing the wounded, let us ascertain what ravages tuberculosis is causing and how such ravages can be limited. I will now examine with the aid of the statistician the dimensions of the "Gate of Tuberculosis," and in order to do this I propose to make use of an admirable statistical paper which was read before the recent Congress on Tuberculosis by Dr. T. E. Hayward, the medical officer of health of Haydock, Lancashire, and one of the most distinguished statisticians of the day. Dr. Hayward set himself to answer by the aid of life tables this question: Supposing tuberculosis could be extinguished, how many more individuals would be alive at certain ages, and how much longer would they live? Utilising the life tables for England and Wales for 1881-90, he proceeded to show how such tables would have been modified had there been during that decade no deaths from any forms of tuberculosis and had all the other causes of mortality retained their proportionate intensity. I need do no more here than to state the conclusions at which Dr. Hayward arrived; his method of attacking the problem can be ascertained by a reference to Vol. II. of the Transactions of the Congress on Tuberculosis. These are the conclusions, and so far as I am aware their accuracy has in no sense been challenged. 1. If there had been no phthisis the average length of life for each individual born would have been increased by two and a half years. 2. Those who had survived to the age of 15 years would have had their average expectation of life increased by about three and a quarter years.

Now the force of my little allegory will be apparent when we are told by Dr. Hayward that the hypothetical results above referred to are greater than those which would be obtained by the total abolition of the whole group of diseases known as the seven principal zymotic diseases—i.e., scarlet fever, diphtheria, small-pox, measles, whooping-cough, "fever" (typhus, simple continued, and enteric), and diarrhœa. Furthermore, if diphtheria, scarlet fever, and enteric fever could be wholly abolished, the average length of life of those at birth would only be increased by about a year, and those at the ages of 15 years and upwards would only have about the fourth part of a year to add to their life's expectation. But Dr. Hayward also set himself to ascertain how much of life's capital gained by the total abolition of tuberculosis would be spent at the working period of life—i.e., between 15 and 60 years of age—and he found that the working period of life would be lengthened on the average by nearly two years. As regards the metropolis, its distinguished medical officer, Mr. Shirley Murphy, has shown by a series of excellent diagrams the enormous toll which pulmonary tuberculosis exacts from the people at the working periods of their lives and, as regards Germany, I will pass round an interesting coloured plate which has been kindly sent to me by Dr. Pannwitz of Berlin and the explanation of which is obvious.

I have now, I think, said sufficient to show that in the eloquent words of Dr. Gavin Milroy, the founder of these lectures, "No question of public hygiene is perhaps of more importance in respect alike of individual suffering and of the welfare of the community than that of the etiology of the chronic cachexiæ."

THE CAUSES OF TUBERCULOSIS.

I now propose to discuss some of the factors which appear to be operative in the production of tuberculosis.

Although the bacillus is an essential factor in the causation of the disease it is in no sense the only factor. Disease is not the bacillus of a given disease but the resultant of many factors, the harmonious working together of which constitutes disease. The parasite without the host would be as helpless as the host without the parasite. Dr. W. Howship Dickinson in his eloquent Baillie Lecture[1] when he took for his text the "parable of the sower" reminded his hearers that "the seed may be indiscriminately and widely spread; within certain wide boundaries it may often be said to be ubiquitous, so that the whole question of distribution turns not upon the seed but the soil, not upon the germ but its reception." When we cast back into the past and endeavour to obtain some idea of the period in which tuberculosis appeared upon this planet, and to ascertain the causes which led to its advent, we become at once lost in speculation of an evolutionary nature. Historical records carry us but for a short distance, and it does not help us much, in so far as the origin of species is concerned, to be told that Hippocrates, some 400 years before the Christian era, first applied the term "phthisis" to the disease. Unfortunately the bacillus has not, as is the case with higher plant life, left its records upon the geological formations of the past, nor have those who may have perished through the agency of the bacillus left behind them any evidence of the fact. Looking at the distribution of the bacillus in the animal kingdom, and the present differentiation of the micro-organism hardly affects the question, it is, I take it, not improbable that when man emerged from the anthropoid apes he carried over with him as a heritage the tubercle bacillus, which in turn may be a degenerate form of some higher vegetable organism. It seems indeed reasonable to suppose that the human tubercle bacillus is simply a modified descendant of a bacillus which has in some form or other exerted its influence upon species other than the human, and this notwithstanding the fact that there may be some difference in the present morphological and cultural characters of the bacillus affecting different species. As to the origin of the vegetable parasite which is the essential cause of tuberculosis we are entirely in the dark, and all we can do is to ascertain as far as possible what are the conditions which make for the coöperation of the individual and the bacillus in such fashion as to produce the disease which we now call tuberculosis. Whatever the coöperating circumstances may be the partnership between the host and the bacillus does not appear to be so close as formerly; the affinity between the two seems to be growing weaker.

We must bear in mind that in so far as England and indeed, as I shall hope to show later, many countries of the world are concerned, the disease is a diminishing one and, so far as can be seen from its present tendency, may eventually become extinct. But epidemiologists will be cautious in concluding that the present downward tendency spells of necessity extinction. It is true that animal species come and go and that each in its turn is succeeded by one which is more adapted to the environment of the moment than the one which preceded it, and what is true of species of the animal kingdom is true also of those of the vegetable kingdom. But epidemiology teaches us that diseases such as influenza, plague, and small-pox may for a time almost disappear and yet, for reasons which we but very imperfectly understand, re-awaken with all their pristine and even greater virulence. In relation to some of these epidemiological problems we are a little like Newton playing with the pebbles on the shore of the ocean of knowledge.

COMMUNICABILITY OF PULMONARY TUBERCULOSIS.

When we look at the subject historically it would seem that as a matter of fact Villemin in 1865[2] demonstrated experimentally that which for centuries past had been a matter of common belief in some parts of Europe. In the writings of Galen and among the authors of the Middle Ages, such as Rhazes, we find the communicability of phthisis foreshadowed; but coming down to more recent times we read that in Spain, during the reign of Philip V., a law was passed imposing upon medical men the duty of notifying deaths due to phthisis, and at Valencia,[3] in 1737, the municipal authorities required under heavy penalties the notification of cases of this disease. The wholesale destruction of clothing, &c., by burning, which followed upon this decree, led after a time to a protest by one Santiago Garcia,[4] and Dr. Hauser of Madrid tells us that at the commencement of the nineteenth century the practice of "disinfection," &c., passed into desuetude. Richard Morton, as early as 1689, published a work entitled "Physiologia," in which he expressed the view that phthisis was a communicable malady. It is related that in 1761 the authorities

[1] THE LANCET, May 10th, 1902, p. 1297.

[2] Cause et Nature de la Tuberculose, Bulletin de l'Académie de Médecine, Dec. 5th, 1865, tome xxxi., p. 211, et Études sur a Tuberculose, Paris, 1868.

[3] Hernandez Morejon: Historia Biografica de la Medicina Españols, tome vii., p. 146, Madrid, 1852. Quoted by Dr. Ph. Hauser in "La Défense Sociale contre la Tuberculose," Madrid, 1898.

[4] Santiago Garcia: Sobre la Nulidad del Contagio. Quoted as above.

at Nancy ordered the furniture of a phthisical woman, who had contracted her disease by sleeping with a consumptive patient, to be publicly burnt. In 1754 the infectivity of tuberculosis was made the subject of a decree by the College of Physicians of Florence.

If, too, we are to believe the Italian records, the disease had become almost epidemic in Naples in 1782, the death-rate having been, it is alleged, 10 per 1000. A patient suffering from pulmonary tuberculosis was isolated and the locality, furniture, &c., were disinfected with substances such as vinegar and sea-water. The penalty for disobeying this injunction was three years' imprisonment with the addition, in the case of nobles, of a fine of 300 ducats, and, if repeated, the offending physician was banished. In Spain and Portugal in 1839 so prevalent was the disease that Georges Sand, who was travelling in those countries with Chopin (who was consumptive), wrote: "At the end of a month poor Chopin, who since he left Paris has continued to cough, became ill. I called in a physician, two physicians, three physicians, each one a greater than the other, who spread abroad the tale that our patient was in the last stage of phthisis. There was immense excitement. Phthisis is seldom seen in these climates and is so classed as a contagious disease. We were regarded as pest breeders. The proprietor of the two small houses we had rented put us out of doors and threatened us with prosecution for infecting the houses."

Morgagni stated in the seventeenth century that in Italy the bedding of phthisical patients was burnt and that he (Morgagni) was afraid to make a necropsy on a body dead from phthisis. We shall see later how these views have influenced the death-rate from phthisis in Italy, Spain, and Portugal, and how far we in this country are reverting to the views and practices which obtained in the eighteenth century. Here we have the discoveries of Villemin in 1865 and Koch in 1882 preceded for over a century by beliefs found eventually to have a basis in fact. In vaccination we had Jesty in 1774 anticipating experimentally the work of Jenner in 1796 and in turn we have the work of Jenner preceding for a century the researches which are tending to show that the same phenomenon of protection, although in a modified degree, may be true of certain other diseases. In the matter of the open-air treatment of consumption we have George Bodington of Sutton Coldfield in Warwickshire crying in the wilderness as far back as 1840, nearly 20 years before Hermann Brehmer, himself a consumptive, erected the first sanatorium at Görbersdorf in Germany. But to revert to the subject of the communicability of pulmonary tuberculosis and of the agencies by which it is effected. I do not propose to weary you with recounting the well-known experiments of Villemin.

At the present time there may be said to be two schools of thought with regard to the main channels of infection between man and man, the one school led by Cornet,[5] the other by Flügge. As is well known, the school of Cornet holds that, in so far as human sources of infection are concerned, the greatest danger is to be attributed to the tubercle bacillus contained in the dried sputum. So long as the sputum is kept moist the danger in Cornet's view is slight; if it is allowed to dry the danger is very materially increased. The dried sputum containing the bacillus is wafted about by currents of air and lodges in the form of dust on the floors and walls of living rooms, workshops, &c., all of which become thereby more or less indefinitely infected. With Cornet's school the use of pocket-handkerchiefs is discountenanced. The infected dust found upon the walls is conveyed there by draughts and is not due to the drying thereon of moist particles directly expelled by the tuberculous patient. I need not dwell upon the experimental work of Cornet in this direction, but I may add that Cornet's conclusions have recently been confirmed and extended by a series of experiments performed by Coates of Manchester, under the supervision of Professor S. Delépine of Owens College. But as the work of Flügge and his pupils may not be so familiar to you as that of Cornet and Coates, I will, with your permission, make a brief reference to it. In the *Zeitschrift für Hygiene* of August 27th, 1901, will be found a collection of papers by Flügge of Breslau and his collaborators and I will touch quite shortly upon some of the points in the experiments of Heymann which are those which chiefly concern us here. Heymann endeavoured by the aid of a glass chamber three cubic metres in capacity to ascertain the behaviour and potency for harm of droplets thrown off by a tuberculous patient during coughing. Petri dishes were exposed in one or other part of the chamber during the experiment and were placed not only before the patient, but at his side and behind him. At the end of the experiment, with the details of which I need not trouble you, bouillon was poured into the Petri dishes and after thorough mixing some of the contents was injected into guinea-pigs: 70 per cent. of them died from tuberculosis. Positive results were obtained not only from the dishes in front of the patient but also from those which were placed behind him. The experiments were repeated and the patient was told to hold his handkerchief before his mouth when he coughed. The inoculations in this case only yielded 30 per cent. positive results and Heymann thinks that if the handkerchief were used in an intelligent fashion a much greater reduction might be effected. The experiments were also performed to ascertain how far the droplets thrown off when coughing tended to remain suspended in the atmosphere of the chamber and the results showed that the droplets speedily settled down and that the bacillus could not be detached therefrom by artificial draughts. It was also found that tubercle bacilli perished within 18 days in the dark and within three days when exposed to sunlight. Additional researches went to show that tubercle-laden dust deposited upon the walls, &c., was not so easily detached as Cornet's experiments would seem to indicate. Heymann thinks that the application of a moist sponge to the wall is not a fair criterion of what takes place in everyday life. It appears, too, that sputum-fouled handkerchiefs do not, as a rule, dry as quickly as has formerly been believed, and the experiments tend to show that if a clean handkerchief is taken every 12 hours and the foul handkerchiefs are properly dealt with, there is but little danger from this cause.

To sum up the position, we may say that, according to Cornet's school, it is largely the dwelling that is the source of infection; with the school of Flügge, it is the patient himself who is the direct danger. Flügge and his school in no sense deny the influence of dried sputum in the spread of the disease, but they regard it as of relatively secondary importance as compared with the influence of the droplets thrown off by the tuberculous patient during coughing. The school of Cornet largely denounces the use of the handkerchief, the school of Flügge regards it as an essential instrument of prevention. Flügge sums up the result of this experimental work by suggesting that a tuberculous patient about to cough should place himself at an arm's length from his neighbours and hold a handkerchief before his mouth. In workshops and offices the employés should be separated by the space of a metre one from the other.

I was interested to hear from Norway only the other day that efforts are made to apply the metre rule in that country. It seems to me, however, that the conditions obtaining in the glass chamber used by Flügge and his assistants approximate but remotely to the conditions which obtain in everyday life where draughts of every description are tending to modify the currents produced by expiratory efforts such as coughing and sneezing. The outcome of Flügge's work shows, I think, the impracticability of altogether preventing the dispersion of tubercle-bearing droplets, and the experiments suggest that if it is desired to render the tuberculous patient entirely innocuous rigid isolation should be practised.

But whatever may be the relative values of the two agencies here in question, what is the actual measure of the communicability of the disease? While there can be no reasonable doubt that pulmonary tuberculosis is, under certain conditions, a communicable malady there can equally be no question that its communicability is of a low order. The testimony of experience, which is a far more scientific test than the records of certain laboratory experiments, should, I think, be sufficient to satisfy us that the communicability of pulmonary tuberculosis can only be contrasted, not compared, with diseases such as small-pox, typhus fever, or whooping-cough. It cannot, indeed, be compared with the communicability of enteric fever which is, perhaps, the least communicable of the diseases which are at present classed together as the infectious diseases and concerning which preventive measures are taken. No one who has, on the one hand, had experience of enteric fever among the staff of well-managed fever hospitals and has seen how, in spite of all instructions and precautions, the nurses do in point of fact contract the disease can reasonably question its infectivity

[5] Zeitschrift für Hygiene, 1889, vol. vi., p. 65, and 1891, vol. x., p. 455.

or hesitate to condemn the practice which obtained even until quite recently of treating enteric fever patients in the common wards of our general hospitals. Similarly, I think, no one who has had experience of consumption hospitals and who has seen the comparative rarity with which nurses, in the absence of any precautions, have contracted the disease, could for a moment regard the communicability of the two diseases as being in the same category. I venture to suggest that the time has come when some differentiation of the communicability of diseases is desirable, and I think that many of those who face this subject conscientiously and seriously will agree with me. Although the bald statement that consumption is infectious is undoubtedly true, the baldness of the utterance gives rise to much misconception and this misconception is leading to somewhat awkward results, albeit the extremists may heartily welcome them. I will give a few illustrations of my meaning.

1. The city of Redlands in California passed an ordinance making it an offence punishable by fine or imprisonment for anyone to erect a sanatorium within the city limits.

"While this ordinance is on the statute book consumptives are scattered over the entire city, in hotels, boarding houses, and private houses, taking no care whatever against the spread of infection."

2. A recent annual report by Dr. J. Niven of Manchester, who has done such splendid service in the country in connexion with the control of tuberculosis, contains the following passage: "In the smaller common lodging-houses, so impressed are the keepers with the infectiousness of phthisis or so much annoyed are they with the constant recurrence of disinfection, that many declare their determination to admit no one into their house who suffers from a cough."

3. In a certain small town in England where a sanatorium for the relatively poor has been inaugurated by the energy and philanthropy of a medical lady of eminence the rector of the parish has forbidden his curate to visit at the sanatorium because, as he says, the disease is as dangerous as small-pox. When passing the sanatorium the rector crosses to the other side of the road.

It remains for the future to determine whether the rector or the patients shall be furnished with the leper rattle with which the arrival of one or another may be duly notified.

4. A short time since a lady of considerable ability, whose brother-in-law had recently developed phthisis and who was anxious to consult a London physician, asked me whether in my view there would be much danger if she invited him to stay for one night at her house.

Dr. J. Spottiswoode Cameron, the medical officer of health of Leeds, tells me that there were certain difficulties in procuring a site for a sanatorium owing to the fear of the people that infection might be thus introduced into their district. I have been told by Dr. E. C. Seaton, the county medical officer of Surrey, that during a quite recent winter holiday at a favourite resort in the Bernese Oberland he heard athletes of the universities and public schools, who were spending the whole of their time out of doors, discussing the danger of going to certain places owing to the presence of the consumptives there. The result of this want of classification is, I believe, rendering it increasingly difficult to procure nurses for consumption hospitals.

That the degree of communicability, whatever it may be, is a diminishing one seems to be clear from the fact that in the entire absence of any direct control and in the presence of a belief in the non-communicability of the disease, the disease in England has been rapidly diminishing—that is to say, if we are to attach any value whatever to our statistical records. This important point may, I think, have been somewhat overlooked by those who preach without qualification the infectivity of the disease. Professor Koch, in his memorable address in London in 1901, stated that "the most important lesson we have learnt from the said experience (our success in combating other parasitic diseases) is that it is a great blunder to treat all pestilences uniformly." I am in entire accord with this view and I would add that it may prove a very serious administrative blunder to regard the communicability of tuberculosis as equal in degree to an acute infectious disease such as small-pox.

In the city of New York the importance of the differentiation *qud* infectivity which I have been here advocating has been fully recognised and acted upon. The ordinance which was adopted in June, 1897, especially aimed at placing the disease in a category separate from that class of contagious diseases which included measles, small-pox, and scarlet fever. I would recall the fact that Dr. Hermann Biggs told us in the interesting paper which he contributed to the London Congress of 1901 that "the difference between pulmonary tuberculosis and the contagious diseases was especially emphasised in the circulars of information"; and he adds: "It seems to me that the difficulties in dealing with the disease have been greatly increased because of the failure of sanitary authorities generally to recognise this distinction. Both to the public and to the medical profession the term 'contagious' conveys a distinct conception of the ready transmissibility of disease from the sick to the well *after slight exposure*. This is certainly not true of tuberculosis." As Professor Brouardel observed in his address before the Tuberculosis Congress in London, "tuberculophobia must not be produced, the patient must not be made a pariah."

In connexion with this subject and the natural history of the infectivity of disease I wish here to draw attention to a most interesting presidential address given by Dr. Payne before the Epidemiological Society of London, in which he dealt *inter alia* with the laws of parasitism. There is, according to the evidence furnished by Dr. Payne, ground for the conclusion that the infectivity or communicability of a given disease bears an inverse relation to the duration of the malady. The all-absorbing object of the parasite which causes any given disease is to provide for the continuance of its species. If, therefore, the duration of the disease in which the parasite is given off from the human, or any other, host is a short one, the communicability of the disease is high, since the opportunities afforded to the parasite of reproducing its species are limited. If, however, the duration of the disease is long the opportunities afforded to the parasite of finding a fresh host are many and the degree of the communicability of the disease is correspondingly low. Perhaps measles and small-pox might be taken as a type of the diseases with a short duration and high infectivity, and tuberculosis and leprosy as types of the diseases whose duration is long and whose infectivity is low. Dr. H. Franklin Parsons reminds me that a somewhat similar provision of nature was observed by Darwin with regard to the fertilisation of plants. Those plants which rely for fertilisation upon wind-borne pollen and whose fertilisation is therefore a matter of improbability produce innumerable pollen, while those plants, on the other hand, which are fertilised through the agency of insects and in which fertilisation is much less a matter of chance produce fewer pollen.

With the classical communication of Dr. C. Theodore Williams as to the incidence of tuberculosis upon the staff of the Brompton Hospital all are doubtless familiar, and it has to be added that these figures relate to a time when the precautions which were taken were in no sense to be compared with those which are in practice at the same institution at the present day. I have endeavoured to persuade Dr. Williams to bring this story up to date and I am in hopes that he will do so. I venture to predict that the record of the last 20 years may not compare unfavourably with that previously obtained. It may be mentioned that Dr. West in his recent elaborate work records that out of 459 male nurses in the Friedrichshain Hospital in Berlin only four were phthisical and two of these were phthisical before entering the service. Out of 339 female nurses only two became phthisical.[4]

I have during the last two years, both in this country and abroad, made numerous inquiries as to the incidence of phthisis upon the staffs of sanatoriums, and the general tendency is to show that only very rarely are any of the staff attacked by the disease albeit the precautions taken have up to quite recently been somewhat rudimentary. Through the great kindness of Dr. R. Robertson, physician to the Royal National Hospital for Consumption and Diseases of the Chest at Ventnor, I am able to furnish certain data with regard to the incidence of tuberculosis on the staff of that historical institution. During the 22 years 1881–1902 inclusive at least 15,500 tuberculous patients were treated within its walls and more than half of this number were what are sometimes spoken of as third-stage cases. Officers, nurses, and servants occupy rooms in the same building as the patients. During the 22 years in question 678 persons of all ranks have been engaged in the institution and they may be conveniently classed in the following fashion: 62 officers, 208 nurses, 407 housemaids, and one charwoman—total 678. I can only give here the briefest summary of what are believed to be the facts but I hope later to publish the complete

[4] West: Diseases of the Organs of Respiration.

evidence. Among the 62 officers there has apparently never been the least suspicion that anyone has contracted phthisis in the institution during the 22 years to which the figures relate. Among the 208 nurses there were apparently six cases with two deaths, but the evidence seems to show that at least three of the six suffered from the disease on admission. Of the 407 housemaids none are known to have died from tuberculosis, although one who married a phthisical hospital patient was subsequently reported to be consumptive; but there are records among the remainder of two cases of pleurisy and one of phthisis; all three are still alive. I could tell a somewhat similar story with regard to certain large provincial institutions but time will not allow. I will, however, add that there is need in some of these institutions for more systematic observation with regard to the incidence of illness upon the staff and I would venture to make the following suggestions, all, or many of which, may be already in practice in certain institutions: 1. The lung condition and the family history of all the staff should in each case be accurately observed and duly recorded. 2. Each member of the staff should be thoroughly examined at least once annually and his or her condition recorded. 3. When a member of the staff leaves the institution his or her physical condition should be noted. If there is the least indication of ill-health every effort should be made to ascertain the subsequent history of the case. 4. In institutions where employés are taken on a month's probation and are not subsequently engaged efforts should be made to ascertain whether they may have contracted the disease.

It is conceivable that in this relative immunity of the staff of consumption hospitals we have an illustration of what may be termed a fictitious class influence. It is not, I think, unlikely that the nurses and certainly the ward maids are drawn from classes in which the general condition of living is inferior to that which obtains in properly regulated public institutions. A point of some little academic interest in connexion with the importance of communicability is the fact that at the present moment there are several medical men who, having suffered from tuberculosis, are acting as medical officers to sanatoriums in this country. They have selected sanatoriums in which the physical surroundings are in every way ideal, and the inference from this seems to be that they attach more importance to the improvement of their resistance than they do to the presence of the parasite, although the past has shown that they have a proclivity to the disease. They willingly place themselves as the best means of prolonging their existence in contact with the bacillus, for no one can, I think, doubt that in spite of every precaution tuberculous patients do in some degree, whether by Cornet's or Flügge's method, spread the bacilli of their disease around them. Against this relatively negative testimony of consumption hospitals has to be placed the historical occurrence recorded by Cornet of the great incidence of consumption upon the novitiates of the Catholic institutions of Prussia where two-thirds of the total deaths were ascribed to tuberculosis. We must, too, remember our recent experience with regard to the asylums for the insane and also bear in mind the number of associated facts which Dr. J. Niven of Manchester and others record annually in their reports.

Many of these facts point strongly to the conclusion that in what may be termed unwholesome circumstances and prolonged exposure pulmonary tuberculosis assumes a higher infective power than it manifests in the relatively wholesome conditions of a hospital for consumption. But in gauging the value of these associated facts we must not altogether lose sight of the consideration that the prevalence of pulmonary tuberculosis at the working periods of life renders it a matter of probability that some such association as is recorded would be likely to be brought to light in a large number of cases, were a sufficiently detailed inquiry made and did the inquiries cover a sufficiently long period of time. The evidence in favour of the fact that tuberculosis may be transmitted from case to case is overwhelming, but I am not equally satisfied that an association of persons which took place three or four years prior to the onset of the malady in any given case is to be regarded as the cause of the disease. It is clearly possible to contend upon a theory of latency that every case of phthisis can be explained by the only exposure to infection which can be traced, no matter how long back in the past such exposure took place, but I do not gather that those who place on record these associated facts thus explain the origin of the illness in any given case. If, however, a thesis of latency be accepted light is thrown upon many groups of cases which are otherwise difficult of explanation, and such a thesis—as, indeed, also does the peculiar age distribution of phthisis—accentuates enormously the importance of the condition of the host as a factor in the production of the disease. In a paper on Rural Phthisis and the Insignificance of Case-to-Case Infection read before the Public Health Section of the British Medical Association at Ipswich in 1901 by Sir Hugh R. Beevor the author draws attention to the remarkable *constancy* which obtains year after year in the death-rates from pulmonary tuberculosis in the rural districts of Norfolk where occupations and populations (at ages from 25 to 45 years) have remained practically stationary for the last 30 years, a fact which, as he points out, it is difficult to fit in with high infective powers which some ascribe to this disease. But I am in no sense disputing the communicability of pulmonary tuberculosis. I am pleading for more caution in setting forth the facts to the public.

THE PREVALENCE OF UNRECOGNISED TUBERCULOSIS.

Although Hippocrates told us that "phthisis, if treated early enough, gets well," we are, I am afraid, in some of our generalisations a little apt to deny to nature the credit which is her due. In any circumstances it is well to keep that which nature does for us before our eyes and hence I would ask leave to recall a few alleged facts, mainly in regard to countries other than our own, as to the spontaneous curability of tuberculosis. Carswell, in 1838, wrote, "Pathological anatomy has never, perhaps, given a more decided proof of the cure of a disease than it gives in cases of pulmonary phthisis." In 1860 Guillot reported that he had discovered signs of cured tuberculosis in 60 per cent. of necropsies made by himself upon old people and more recently Letulle has shown that out of 189 bodies examined by him only 79 were found to be quite free from the signs and suspicions of tuberculosis. Ribart has established that 50 per cent. of men thought to be well and not tuberculous, and who died from old age or accident, had at some time or other during their lives been the subject of tuberculosis. As he observes, "There are then many attacks and also many recoveries when a half of the human race has tubercles but support them without knowing it. Such is the significance, truly comforting, of the result of the autopsies." Brouardel himself records his experiences that in the necropsies at the Morgue of persons who had lived some 12 years in Paris he has found that in 50 per cent. of the cases there were signs of old tuberculous lesions cured either by calcification or by fibrosis.[7]

Finally, let me call your attention to the fact that Nägeli has detected such lesions in no less than 90 per cent. of 500 necropsies performed by himself. It is well, too, to bear in mind that many of these old scars tell the story not only of quite early phthisis but, as Brouardel reminded us in 1901, of "wide, completely cicatrised cavities." Although these figures doubtless relate more particularly to the poorer and less resistant classes the facts are significant. They show how much good may be done in aiding the healing process by sanatoriums and by better conditions of living and they furnish us, too, with food for reflection in other directions. If, for instance, by some means of diagnosis at present unknown to us the existing facts with regard to actual or cured tuberculosis could be ascertained and a label could be attached to each person who has now, or who has had in the past, some tuberculous lesion, what an interesting spectacle might be presented during a walk down Fleet-street. Think, too, of the revelations of a general application of the tuberculin test.

THE RELATION OF TUBERCULOSIS TO POVERTY.

It is obviously impracticable to dissociate the effects of poverty *per se* from those of the conditions with which poverty is almost invariably allied and of which they are but the expressions. Similarly, if we take overcrowding alone, we are unable to estimate separately its effects. It may, however, be said in passing that of the five factors which are usually associated with overcrowding—i.e., poverty, underfeeding, deficiency of light, defective ventilation, and uncleanliness—the last three are conditions favouring both the bacillus and the soil, whereas the influence of the first two may be thought of as being mainly exerted upon

[7] Lubarsh in a report on the Pathological Department of the Royal Hygienic Institute in Posen states that of 800 bodies which were dissected 61 per cent. showed tuberculous lesions, and if the observations were confined to those over 16 years of age 88·4 were found to be tuberculous.

the soil. But as the influence of overcrowding has been ofttimes abundantly demonstrated I will here bring to your notice certain figures from Hamburg and Budapest which are at least suggestive. I am aware that in drawing attention to poverty I may not have the full sympathy of those who believe that every tubercle bacillus, latent as well as active, can be captured and destroyed, and that all our efforts should be directed towards this end.

But I am desirous, so far as is within my power, to reduce to their relative proportions the several factors associated with the causation of this disease so that the force of public opinion and sentiment now available may be turned into the most profitable channels. I will in the first instance draw attention to the statistics of Hamburg as furnished by Dr. Reincke, its medical officer of health. Dr. Reincke has for the past six years arranged the taxpayers of Hamburg into several groups, the number of marks per annum being the basis for such grouping. The first group has an income ranging from 900 to 1200 marks and the last an income of from 25,000 to 50,000 marks. The figures suggest, as will be seen by the accompanying table, that the death-rate varies inversely as the income, but there are certain irregularities which are somewhat difficult to explain. It will be seen, for instance, that in 1898 the incidence on the poorest group was only about half that on the group immediately following and that in 1900 the incidence on those receiving from 10,000 to 25,000 marks was greater than that upon the three groups immediately preceding. If, however, the average rates for the five years be worked out it will be found that there is a general decline in the death-rate from pulmonary tuberculosis as the income of the taxpayers rises. This decline is most marked on the second and third groups and between the third and fourth.

The numbers in the groups of the wealthier classes are small and the value of the rates throughout the table would seem to depend in a material degree upon whether the age distribution of the several groups is so nearly identical as to justify the inference that the rates are fairly comparable. I have written to Dr. Reincke as to this and he tells me that the ages of the several groups are so nearly identical as to afford a fair basis for comparison. Dr. Reincke also points out that a very large number of the deaths from pulmonary tuberculosis are not to be found in the tax roll and that such persons belong to that class which have incomes of under 900 marks.

TABLE I.—*Death-rate from Pulmonary Tuberculosis in Hamburg among the Several Income-tax Classes.*

Income.	Death-rate per 10,000 in each class.					
	1896.	1897.	1898.	1899.	1900.	1901.
Marks.						
900 to 1,200	35·0	44·1	19·3	42·1	45·6	31·6
1,200 ,, 2,000	29·2	23·4	28·0	27·1	29·5	19·3
2,000 ,, 3,500	17·8	22·5	14·6	24·9	15·4	8·4
3,500 ,, 5,000	14·6	17·4	1·9	1·4	8·6	11·5
5,000 ,, 10,000	4·8	12·0	9·8	4·8	14·3	4·2
10,000 ,, 25,000	2·9	6·2	5·7	5·6	5·6	4·9
25,000 ,, 50,000	28·5	10·0	9·2	8·7	8·7	7·5
Over 50,000	—	—	—	—	—	—

As a sort of control experiment Dr. Reincke constructed another table (Table II.) in which he included not only the taxpayers but also those dependent upon such taxpayers, and he has been good enough to forward me a copy of this table. It will be seen that the results are very similar to those obtained by taking the taxpayers alone—i.e., the smaller the income the greater the incidence of the disease.

Dr. Reincke has, too, in his elaborate treatise on the health of Hamburg during the nineteenth century, furnished a highly interesting table intended to show by means of curves the incidence of tuberculosis upon the poorer, as compared with the richer, districts of Hamburg.

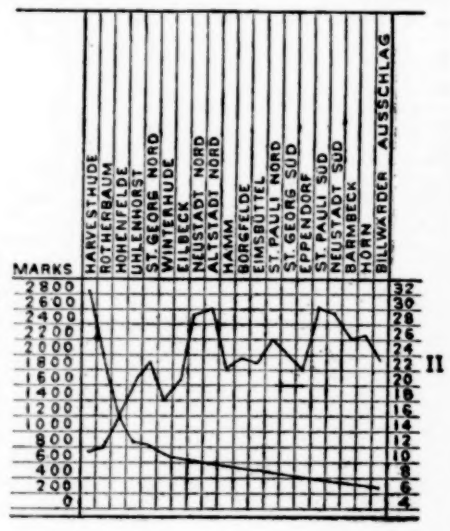
TUBERCULOSIS IN RELATION TO WEALTH IN BUDAPEST.

In Budapest Korrosi has worked at this aspect of the question for many years and he has arranged each case of death under one or other of the following groups: very rich, wealthy, poor, and indigent, prefacing his conclusions by the caution that although we can by this means arrive at

TABLE II.—*Death-rate from Pulmonary Tuberculosis in Hamburg among the several Income-tax Classes (inclusive of the Dependents of the Taxpayers).*

Income.	Death-rate per 10,000 in each class.					
	1896.	1897.	1898.	1899.	1900.	1901.
Marks.						
900 to 1,200	61·4	81·6	35·6	71·6	78·2	55·4
1,200 ,, 2,000	48·8	48·2	70·9	50·2	61·6	38·7
2,000 ,, 3,500	36·9	37·3	37·7	42·7	29·7	21·5
3,500 ,, 5,000	34·9	28·4	22·5	12·9	15·7	29·5
5,000 ,, 10,000	12·8	22·3	14·8	20·7	20·7	5·7
10,000 ,, 25,000	20·3	12·3	11·4	11·2	30·7	9·8
25,000 ,, 50,000	38·0	10·0	27·5	17·5	17·5	7·5
Over 50,000	—	—	—	—	24·7	—

the actual number of deaths in each class, we cannot obtain the necessary information as to the total number living in each group. Hence we are unable to determine the actual death-rate from pulmonary tuberculosis in each class. But Korrosi suggests that by coupling together the first two and the last two of the above groups an approximate to the truth may be obtained. He points out that if wealth exercises no influence upon the incidence of any special disease the rate of the deaths from such diseases to the total deaths from



I., Income per head of the people. II., Mortality from pulmonary tuberculosis per 10,000. 1885–1900.

"all causes" should be identical among rich and poor. But he tells us that of 100,000 deaths among the wealthy 15,943 go out by way of pulmonary tuberculosis, whereas among 100,000 deaths among the poor 22,339 are certified as tuberculous. From these figures Korrosi infers that pulmonary tuberculosis causes in Budapest 40 per cent. more deaths among the poor than it causes among the rich. Here again the age distribution of the two groups might be likely to modify materially the results, but with this reservation the figures have considerable interest.

As regards this country Sir Hugh Beevor has made a most valuable contribution in his oration on the Declension of Phthisis which was delivered before the Hunterian Society in 1899. The value of that address has not, I am afraid, been adequately appreciated by epidemiologists and I regret that the scheme of these lectures does not allow me to do justice to his theme, more particularly as I find myself very largely in agreement with the general tendency of his conclusions. As indicating the influence of poverty upon the incidence of phthisis the author furnishes a table arranged

in three columns relating respectively to the prices of corn, pauperism, and wage-earning. The figures show, as Sir Hugh Beevor observes, "a coincidence and a remarkable agreement between the fall in the phthisis-rate, the fall in the price of corn, the fall in the number of paupers, and the rise in the average wage." The author also points out that if a more liberal diet is a very important factor in bringing about the remarkable fall in the phthisis-rate which has taken place in this country the wealthier classes should have contributed to such fall in a smaller rate than the poorer classes, and he furnishes some data which I cannot now reproduce to show that there is evidence tending towards this inference. He adds: "As far as I can trace the well-to-do classes have always suffered much less from phthisis and have not gained a proportionate declension." In a word, nutrition is not only an important element of cure, it is also an enormous factor in prevention. It would clearly be idle to contend from the above facts that tuberculosis is the heritage of the poor alone. We know but too well how often the well-to-do classes are attacked and the manner in which at times whole families of these classes are blotted out. But the fact remains that proclivity towards the disease is enormously enhanced by the conditions associated with poverty.

THE RELATION OF ALCOHOLISM TO PULMONARY TUBERCULOSIS.

The criticism may be offered that alcoholism is a social question and that it has little concern with medicine. But alcoholism is as much a disease as is any other condition with which the physician is called upon to deal, and if we wish to attack by truly scientific methods the prevalence of tuberculosis we must not neglect to consider what may perhaps be an important factor in its causation. I am glad, too, to see that the relation between alcohol and health generally has recently received consideration in the annual report of such a pioneer medical officer of health as Dr. A. Newsholme of Brighton. The view that alcohol is one of the predisposing causes of pulmonary tuberculosis, and which according to Laverenne dates back to 1780, seems to be rapidly gaining strength in the present day, the pendulum of professional opinion having swung to this position from the belief, originated in 1849 by Magnus Huss, that the sclerotic action of alcohol was actually antagonistic to phthisis or that at most it bore no relation to it. The evidence upon which this modern view is founded appears to be somewhat as follows:—1. That alcoholism and tuberculosis are frequently found post mortem to have been associated. 2. That the death-rate from tuberculosis among persons such as barmen and hotel servants employed in circumstances conducive to alcoholic absorption is unduly high. To this aspect of the question Dr. Tatham's world-wide known statistics have borne testimony, as also has the work of Dr. Niven of Manchester. As regards the first of these propositions, Dr. Hector Mackenzie, writing in Gibson's Text-book of Medicine, expresses the opinion that alcoholism must be regarded as a powerful predisposing cause of tuberculosis. It is in his experience almost invariable to discover tubercle in the lungs of patients dying in the course of alcoholic paralysis. Moreover, tubercle in the peritoneum or pleura frequently complicates cirrhosis of the liver. Dr. Mackenzie regards alcohol in excess as rendering the body less resistant to disease of all kinds, a position which the experiments of Professor Sims Woodhead in England and of Laitenen in Germany tend to support. Dr. Mackenzie further states that in 67 cases of pulmonary tuberculosis occurring in drinkers there was a family history of tuberculosis in only ten cases, whereas in apparently non-alcoholic persons such a history is elicited in about 30 per cent.

Dr. T. N. Kelynack made an interesting contribution to the pathological side of the subject in Vol. III. of the Transactions of the Tuberculosis Congress. Out of 11 cases of alcoholic neuritis which reached the post-mortem table pulmonary tuberculosis was met with in eight or 80 per cent. Dr. Kelynack has also analysed the records of 3053 medical cases examined in the pathological department of the Manchester Royal Infirmary. After eliminating all doubtful cases of cirrhosis of the liver, as also all secondary cases, he found that over 23 per cent. of the remaining cases presented evidence of tuberculosis, active phthisis being found in 14 and active peritoneal tuberculosis in 12.

Turning to that other great branch of the Anglo-Saxon race which is rapidly peopling the continent of North America we have the authority of Osler to the effect "that chronic drinkers are much more liable to both acute and pulmonary tuberculosis. It is probably altogether a question of altered tissue soil, the alcohol lowering the vitality and enabling the bacilli more readily to develop and grow." In Germany we find Bollinger struck with the frequency with which the waiters of Munich became tuberculous and according to Romme many clinicians agree in saying that no one tuberculises himself with greater frequency than does the alcoholic. It is, however, among the French that the view that alcoholism is one of the greatest predisposing causes of tuberculosis is most highly developed. This view was supported by the Tuberculosis Commission which sat in Paris in 1900, and it has received the almost unqualified approval of Professor Brouardel. Some of the arguments used are a little general. During the last 30 years the consumption of absinthe, liqueurs, and other spirits has enormously increased in France. For instance, in 1873 it was 29,192 hectolitres and in 1897 it was 311,952 hectolitres. In his interesting work, "La Lutte contre la Tuberculose," Professor Brouardel furnishes a table which purports to show the relation of the consumption of alcohol to the prevalence of tuberculosis. The several departments have been arranged in accordance with the consumption of alcohol per head of the population and it is found that as the consumption of alcohol per head increases so also does the tuberculous death-rate rise.

Deaths from tuberculosis per 10,000 living.	Annual consumption of litres of alcohol per person.	Deaths from tuberculosis per 10,000 living.	Annual consumption of litres of alcohol per person.
30 to 40	12·47	70 to 80	17·16
40 ,, 50	15·21	80 ,, 90	17·30
50 ,, 60	14·72	90 and over	50·70
60 ,, 70	16·36		

Jacquet has found that out of 252 phthisical patients 180—i.e., 71·42 per cent.—were alcoholic, and according to Barbier and others the percentage is as much as 88 per cent. It is facts such as these that have led Landouzy to the aphorism, "L'alcoolisme fait le lit de la tuberculose," and Hayem to say, "La phtisie se prend sur le zinc."[8]

It is, I think, a little difficult to arrive at a definite conclusion with regard to the precise nature of the association between alcoholism and tuberculosis. That there is an association would seem from the evidence conclusive. But in the matter of the excessive incidence of phthisis upon those, such as waiters and others, who are more or less concerned with the liquor trade, it is probable that many of them embrace these occupations because they are from their physical or moral natures unsuited to perform a higher class of work. In their capacity as waiters they are frequently confined to stuffy, ill-ventilated rooms, and not improbably to defective sleeping apartments, all of which factors are likely to increase the susceptibility both towards alcoholism and tuberculosis. Moreover, potmen and those who frequent public-houses are, as Niven and others have pointed out, exposed unduly and for a prolonged period to tubercule-infected rooms, floors, &c.

Alcohol may be taken in the first instance with the view of keeping a defective economy up to the work which it has to perform, and when phthisis has been acquired by the loss of resistance due to depressing surroundings and the prevalence of the tubercle bacillus, alcohol is taken in increasing amounts to stimulate the flagging energies. In this sense alcohol is certainly a cause of tuberculosis, but it seems to me also that the facts point almost conclusively to there being a more direct relation than this.

THE INFLUENCE OF INSANITY UPON PULMONARY TUBERCULOSIS.

Although there is still much to be learnt as to the precise significance and the magnitude of the relations which obtain between insanity and tuberculosis, the material which has been collected by Dr. T. S. Clouston, Dr. F. G. Crookshank, and Dr. Eric France, as also by a committee of the Medico-Psychological Association, suffices to show that, as has

[8] La Propagation de la Tuberculose (Commission de la Tuberculose), Paris, 1900. La Lutte contre la Tuberculose, par Professor Brouardel. L'Alcoolisme et la Lutte contre l'Alcool en France, par R. Romme.

been for a long time believed, the incidence of pulmonary tuberculosis upon the inmates of our asylums is very great relatively to that upon the outside population even when the age group manifesting the greatest incidence of tuberculosis is taken as an index. Whether, as has been suggested, an average death-rate from tuberculosis of even 150 per 10,000 suffices to cover all the facts must for the present be left an open question. There seems to be little doubt but that a large proportion of the patients have contracted their disease within the institutions, although owing, generally speaking, to an absence of accurate data upon which to base our conclusions, we cannot as yet determine what percentage of those who eventually die from tuberculosis or who are found post mortem to have suffered from it had tuberculosis on admission.

There are, however, facts tending to show that a very considerable percentage of those who die from pulmonary tuberculosis contract or, at any rate, develop the disease within the walls of the institution. For instance, Dr. Brain records in the *Tuberculosis Journal* for April, 1900, that of 74 consecutive cases of phthisis between the ages of 20 and 62 years, which were treated in the Lancashire Asylum, only three had acquired phthisis before admission to the institution.[9] It would appear, too, that those who enter an asylum with phthisis are not likely to become cured of it therein. There seems considerable difficulty in determining whether there is in the insane any special soil proclivity towards the operations of the tubercle bacillus, and in the absence of more comparable data it is not easy to decide the point. Dr. F. W. Mott has recently drawn my attention to a very interesting work by Mr. A. F. Thredgold on Amentia (idiocy and imbecility) in which the author dealing with the intrinsic conditions of the germinal plasm and discussing certain hereditary influences furnishes figures under the heading of consumption which tend to show that in families in which weak-minded children are born there is in 34 per cent. a marked tendency to pulmonary or other forms of tuberculosis. Mr. Thredgold fully recognises the importance of checking these figures with others derived from the mentally sound population, but, as he observes, the material for such a comparison is not available. The subject is, however, a very difficult one as will be seen by certain statistics with regard to several asylums which I shall shortly give. But whether or not such a proclivity exists the remedy would appear to be almost identical—i.e., to increase the resistance by every available means. As has already been pointed out by the Committee of the Medico-Psychological Association there is need for a more careful examination of the lungs of lunatics, both on admission and at regular intervals subsequently, and there is need, too, for the segregation and treatment by open-air methods of all those found to be tuberculous.

It is doubtless also true that greater efforts should be made to improve the resistance of the patient and this is the case whether or not the tubercle bacillus is already present in a latent state in the patient's economy. That resistance is an important factor in the problem is suggested by the consideration that susceptibility to attack seems to be greater in those lunatics drawn from the large towns than in those from the rural districts. The best means towards this augmentation of resistance is the provision of more air space per patient, more particularly in the sleeping quarters, better ventilation and means of maintaining an adequate temperature, more attention to the dietary, and greater opportunities for outdoor exercise. It is worthy of consideration and investigation whether the anxiety on the part of those responsible for maintaining the temperature of the wards at a fixed degree and the fact that the facilities for so doing without closing all the doors and windows are inadequate may, as has been suggested to me by the medical officer of a certain asylum, have more to do with the obviously unwholesome state of the wards than is generally believed. The temperature aimed at may sometimes be undesirably high and it is not unlikely that if the patients were more in the open air they would soon with impunity adapt themselves to a temperature three or four degrees lower. It is clear that even delicate consumptives may rapidly adapt themselves even to the variations of the outside air. In America this aspect of the problem has already received attention and Dr. A. E. Macdonald in the middle of 1901 inaugurated a system of tent life at the Manhattan State Asylum, Ward's Island, New York City. From a paper read last year at the meeting of the American Medico-Psychological Association at Montreal by Dr. C. Floyd Haviland, it appears that 81 patients were placed under tent conditions and that highly encouraging results were obtained.[10]

[9] Medico-Psychological Association's Tuberculosis Report.

TUBERCULOSIS IN ASYLUMS IN PRUSSIA.

In view of the excessive incidence of tuberculosis upon the inmates of asylums in this country it is of interest to turn to some recently issued Prussian statistics. As in this country so in Prussia the excessive incidence of tuberculosis in asylums has long been a matter of common knowledge among the medical officers of these institutions and it may be added that the statistics for the Prussian asylums are enhanced in value by the fact that a necropsy has been held in 70 per cent. of those who have died from tuberculosis. Among 70,958 lunatics treated in the asylums during 1901 there were 5128 deaths, or a fatality-rate of 7 per cent. Out of this total 820 (1·16 per cent. of the treated) died from tuberculosis, 653 (0·92 per cent.) from pneumonia, and 340 (0·48 per cent.) from other lung diseases—i.e., of the total deaths, 36·3 per cent. were from lung diseases, and of these 16 per cent. were from tuberculosis, 13 per cent. were from pneumonia, and 7 per cent. were from other lung diseases. The incidence of tuberculosis was heaviest upon the idiots, as out of 12,212 idiots treated during 1900 462, or 4 per cent., died, and of these 259, or over a half, died from lung diseases. Of this number 186—i.e., two-fifths—were due to tuberculosis, 48 to pneumonia, and 25 to other lung diseases. In this connexion it has to be mentioned that over half the idiots treated were under 30 years of age, a fact which goes far to discount the criticism that the age distribution of the asylum population is not furnished. It is interesting to note that among the paralytics pneumonia took a very high place.

TUBERCULOSIS IN ASYLUMS IN FRANCE.

A similar story comes to us from France. In the report of the commission on tuberculosis, it is stated that the annual populations of the asylums from 1894–98 was 57,424, and of this number there were 6726 deaths—i.e., 117 deaths from tuberculosis per 10,000 patients, as against an annual mortality for the whole of France of 43·8 per 10,000—i.e., the contribution of the asylums is nearly three times as great as that of the outside population, and although I have not been able to determine the age-distribution of the asylums population, there is little doubt but that the asylums rate is altogether excessive. It seems, too, from the final report of the commissioners that if the asylums are arranged in the following three groups the mortality from tuberculosis ranges from 196 to 48 per 10,000, a fact which, it is claimed by the commissioners, supports the view that the excessive death-rate is artificial and not, what may be termed natural—i.e., it is not of necessity due to a greater tissue proclivity on the part of the insane.

Number of asylums.	Population.	Deaths.	Rate per 10,000.
28	202,415	3951	196·7
29	236,251	2088	88·3
28	135,594	656	48·3

It is found, too, on a more detailed analysis that the extreme rates range from 500 per 10,000 in Morlaix to 39 per 10,000 in private asylums—i.e., the tuberculous death-rate in private asylums is less than that in the outside population. But, as Professor Brouardel observes, there is need for a more extended investigation as to the behaviour of tuberculosis in asylums before any adequate explanation of the phenomena can be advanced.

[10] Tent Life for the Tuberculous Insane, THE LANCET, May 2nd, 1903, p. 1249.

VACCINATION EXPENDITURE.—At a meeting of the Warminster board of guardians held on June 29th it was reported that the cost of vaccination to the guardians for 1901 was £77, but in 1902, when there was a small-pox scare in the town, the cost was £244. After some discussion one of the guardians gave notice that he would propose a motion asking the Local Government Board to reduce the fees of the public vaccinators.

An Address
ON
THE SCOTTISH MEDICAL CORPORATIONS AND THE PUBLIC WEAL:
HOW THEY MIGHT DEVELOP A HEALTH CONSCIENCE.

Delivered before the Medico-Chirurgical Society of Edinburgh on July 1st, 1903,

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MR. PRESIDENT AND GENTLEMEN,—The three Scottish medical corporations—the Royal College of Physicians of Edinburgh, the Royal College of Surgeons of Edinburgh, and the Faculty of Physicians and Surgeons of Glasgow—have each, by charter and by Acts of Parliament, acquired certain important privileges and have many duties to the profession of medicine and to the public. The powers granted to the corporations related to the health of the people and the welfare of the State. "*Vita et sanitas*" was their motto. They bound into corporate strength the units of the profession of medicine, they "elevated its character and dignity," and they encouraged and advantaged medical science and learning. They originated and have continued to support the chief of the great schools of medicine of Scotland. Most of the leaders of surgery and medicine in Scotland in the past have belonged to these bodies, all this tending strongly towards the public good. A glance at their history shows that their conceptions of duty have widened as time went on; they have, in fact, undergone a process of development and evolution. At the present time they are well-organised, energetic bodies, full of zeal for the advancement of the profession of medicine. They show no signs of senility. They have, on the whole, taken a wide view of their responsibilities and have not written "finality" on their aims. No one can read their charters and try to get at their spirit without seeing that they admit of a wider and more beneficial construction than appears at first sight, and this larger outlook has generally been taken. No doubt in their hundreds of years of existence there have been movements that seemed narrow and selfish, but these were short-lived. The proposition which I am to advance to-night is that now, at the beginning of the twentieth century, medicine and surgery and the sciences on which they are founded have made such advances and have thereby acquired such capacities of ameliorating the lives and improving the health of men and women that there is room for a forward movement on the part of these corporations for the public weal. New conditions affecting the physical and mental welfare of men for good and evil have arisen. New means of spreading health-knowledge are in existence. New methods of influencing the masses of the population for good in regard to their food and drink, their modes of life and environments, are at the disposal of those who have the knowledge and authority to use them. The general press has become a power that reaches almost everyone, but it is little used by medicine. The democratic idea that every citizen is entitled to the benefit of everything that will add to human health and happiness is growing fast. The public ignorance as to health and welfare conditions is great but the craving to know them is widespread and pathetic. A professional authority to which appeal can be made is longed for. The conviction of health sin is general and the prospects of conversion to a new healthy life are promising. Health and sanitation Acts by the legislature, medical officers of health, sanitary inspectors, notification of infectious diseases, inspection of workshops, health lectures, health congresses, innumerable and energetic efforts by medical societies and by medical and lay preachers of physical righteousness have all, in addition to prolonging life and diminishing death, done incalculable service by rousing in the public mind the vague beginnings of a tremendously important mental process of a dissipation of the former fatalistic assumption that disease and deformity, weakness and unfitness, are inevitable things which God and the devil had arranged between them for the chastening of mankind and the punishment of their sins. Not only so, but there are visibly arising among the more intelligent of our people the beginnings of a new development of the moral sense, a feeling of personal responsibility for the existence of disease. In fact, there is arising an influence which may do as much for the physical and mental condition of men as morals and religion have done for their conduct. A "health conscience" is being slowly created. Many people are keenly dissatisfied with the present health and welfare of the body politic and self-reproachful about evils which they think should not exist and which they individually should help to put an end to. Some of them go even further and have in their minds the beginnings of a health ideal—a conception of communities of men and women, strong, handsome, fruitful, long-lived, intelligent, self-controlled, and free from disease. Such ideals are very stimulating to efforts for their attainment and should by all means be encouraged. Things only get done when a sense of duty comes in and ideals are formed, and it is in this direction that our corporations could work most effectually.

No body of men knows, or can know, so well as the medical profession the state of the public mind in regard to health questions or the extraordinary difficulties which must be encountered in dissipating the profound ignorance which on this matter besets it. We all feel that in this we should educate our masters, the public, in all that relates to its physical and mental condition. Most of us try to do so individually, but to leaven the mass of mankind with health knowledge will take a long time and will need more than sporadic individual effort. As a profession we have not as yet taken the position to which our knowledge of physiological laws and our sanitary and medical experience entitle us. The public at present does not use us and our knowledge as it might for its own benefit. The legislature notoriously distrusts us and does not call us in as it might do to its aid in framing its Acts which affect the health and welfare of the people. Few large conceptions of the value of modern physiological, sanitary, and medical knowledge to the state have been expressed by our parliamentarians and statesmen since Disraeli's famous "*Sanitas sanitatum*" epigram. What do we hear of the physiology and psychology of brain development in the course of the torrents of discussion on education? We are by many influential laymen suspected of being professionally selfish, faddy, and incapable of taking large views that would be both practical and helpful to the statesman. As a matter of fact, it is doubtful if the professional ideal of the medical man is quite as altruistic and unselfish as that of the priest. In reading lately the Journal of John Wesley one could not but be struck with the fact that no man of our profession had ever been inspired with the physiological ideal of elevating and perfecting human life as he was with his spiritual ideal. None of us have gone to the people and devoted our lives to save them from disease, degeneracy, and death as he did to save them from hell fire. And yet there are possibilities for a medical apostle of health as fruitful for human good in the long run looking to the future of our race as were Wesley's labours of 50 years, his 300,000 miles of travel, and his 200,000 sermons and addresses. He was a great organiser and founded a church to carry on and to spread his work. We sadly need an organisation for our propaganda and some authoritative body with a continuous life to attend to the soundness of our people in body and mind.

Of course it will be at once objected that our doctrines are not yet always indisputable, that the laws of life are far from being yet fully elucidated, that our facts are yet too few to found universal health precepts on, that we might lead the people astray by premature generalisings, and that notoriously "doctors differ." No doubt these are our drawbacks and risks, but our answer is that we have definite knowledge enough even now to do enormous good to men's health and that the public welfare would benefit greatly by the application of that knowledge. Take, for example, the food question of our people—that primary of all physiological needs. Can anyone say that the large and accurate chemical and physiological facts which we possess about foods are generally known or utilised for the benefit of our people? Food, its constitution, selection, cost, cooking, and use concern the health, mental and bodily, of every man, woman, and child, and knowledge about it is especially related to the health, comfort, and

social well-being of our wage-earners. The writing of this paper was partly suggested to me by the recent investigation on "A Study of the Diet of the Labouring Classes in Edinburgh" by Dr. D. Noël Paton, Dr. J. Crauford Dunlop, and Dr. E. M. Inglis, published last year. The scientific work of this paper having been carried on in the laboratory of the Royal College of Physicians of Edinburgh gave it a special interest to its Fellows and those of the Royal College of Surgeons. It embodied most laborious and careful observations, it received help from the town council of Edinburgh, it was intensely practical, and its facts and conclusions would, if digested and practised, have been of great benefit to every wage-earner in Scotland. Life and health to many of them might depend on their knowledge of the facts of that paper. What systematic means were taken to spread its most important facts and conclusions in an effective way among the people it concerned? None whatever, except that part of it was published in the local newspapers. Every working man in Scotland might have got a copy for a halfpenny. Can anyone say that in this instance—which I take almost at random—there is not room for an organised diffusion of such important health knowledge by our corporations? Our physiological, medical, sanitary, and dietetic knowledge of the most pressingly practical value is thus buried in our medical journals and books and never reaches or benefits the people who need it and who often would be most willing to receive it. It is as if practical morals and religion were to be hidden in ethical and theological tomes, while vice and irreligion were rampant among mankind.

Then look for a moment at the insignificant place which physiology and medicine hold in education. A Scotch professor of education, in a recent address to teachers, told them that educators were commonly ignorant of the very first principles of the physiology of the developing brain and he was not contradicted. My experience entirely confirms that of Professor Edgar and this is not the fault of the teachers. No one has taught them this knowledge or impressed them with the idea that it ought to be an essential part of their armamentarium. If a human brain has to be "educated" between the ages of five and 25 years, surely the educator should know something of it and its development between those ages. It is only quite recently that it ever seemed to occur to our legislators and great school boards that medicine and physiology could help them to understand the relationship between the developing brain of a man and his mental and moral character—the most subtle and for humanity one of the most important things in nature. Has medicine no responsibility for the ignorance and neglect on this matter? It seems a clear duty to assert its place for the benefit of future generations of mankind. If there is one period of life, and if there is any process affecting mankind in which medical and physiological experience come in, they are the developmental and educational period and the educational process. People talk with horror of a godless education; they seem to have no sort of fear of an unhygienic education. To read most educational works the mind is everything; the brain through which alone the mind can act is seldom mentioned. Philosophy, religion, morals, mind, everything seems to come into education except physiological law and fact. The recent Scottish Royal Commission on Physical Training, admirable in its aims and its appointment a sign of better things, came nearest the medical idea of approaching the subject, but its basal idea was not quite the scientific one, and instead of one medical man among nine members half the Commission might well have consisted of physiologists, sanitarians, and medical men. By far the most important parts of the report were not the opinions expressed by the educationists and others but the developmental and medical facts which were brought out in important original investigations by Dr. F. Warner, Dr. W. Leslie Mackenzie, and Dr. M. Hay. The members of the Commission as a whole seemed not to grasp the philosophical conception of the unity of the human organism and the essential connexion between body, mind, and brain. I believe a similar German Commission would have been differently constituted and would have taken a larger view of its functions. It seems as if it would take a century to eradicate the idea from this country that science is necessarily "unpractical" and that the "business man," and he only, can be trusted to investigate and to report on any subject whatever that concerns the people or the State.

The mind of the country is now wakening up to the idea that there is a process of degeneracy going on in our town populations. But there has been no really large and scientific treatment of this momentous subject either to investigate the facts or to inquire into the essential difference between urban and rural life and their physiological effect on mankind. Scientific men can alone do so, but at present it is no one's duty in particular, and we drift along in ignorance, with spasms of panic, when such facts as that only one Manchester recruit out of five can be made to handle a rifle came out in a casual way in the newspapers.

There are many other matters of primary importance to the life and health of our people in regard to which they urgently need knowledge and a sense of duty. The great housing problem, the nurture of children problem, the heredity problem, the marriage of the weak and tainted problem, the alcohol problem, and the mental disease and degeneracy problem are some of those. Looking at the last, the mental problem, "lunacy" is looked at far too much *per se* and without reference to its true and large physiological and psychological meaning and to its relationship to hereditary weakness and to environment, to other forms of disease, to other degeneracies and brain "reversions." The public have first to be untaught much, too, about mental disease as well as to receive helpful practical knowledge. Superstitions and prejudices about that and other health subjects die hard. Even when large and admirable ideas and schemes relating to health and human conditions are started they are apt to lack scientific guidance. Witness the Garden City Association with its committee of 68 members, only two of whom are members of the medical profession, and its council of 19 with not a medical man among them. Why, the very idea of such a city originated with Sir Benjamin Ward Richardson in his "Hygeia or a Model City of Health." If St. Margaret's Hope is to become such a model city as the Garden City Association urges, and as we all fervently hope it will be, this can only be done through the application of the sanitary and scientific knowledge possessed by the medical profession and by our active and practical help.

I have purposely omitted to refer to the existing agencies and efforts for improving and maintaining the public health which have done such wonders, but rather have endeavoured to point out some of the unoccupied fields. The labours of the older sanitarians, the Public Health Acts, and the magnificent work of our medical officers of health we all know to be the very sheet-anchors of nearly all the improvements that have taken place of late years. My only regret is that these Acts are not wider in their scope. The medical officers of health in very many cases take a larger view of their duties than those prescribed by statute and their annual reports are as yet the best Bibles of health we possess. Any means by which the most urgent and impressive of these facts and teachings could be brought into effective contact with every mind in every county of Scotland would in time do incalculable good and this I believe our corporations could effect. I should like to see every medical officer of health a fellow or a member of our medical corporations for the mutual benefit and assistance of both.

If it is granted, and it cannot well be denied, that there are unoccupied health fields, that the public weal urgently demands further efforts to improve the health and the organic welfare of the people, and that the recent advances in science and medicine enable such efforts to be successfully made, then the question arises, "On whom does this duty chiefly fall?" We are a small and compact country in Scotland, we are as advanced in regard to medical sciences as any other country, we are supposed to have average efficiency in administration, and we have three great medical bodies with prestige and organisation whose charters permit of their undertaking such work if they do not when interpreted in a large sense directly point to it in the interests of the public health. Our people are, on the whole, well educated and receptive as well as alive to their own interests. Our newspaper press is public-spirited and—when politics do not intervene—open to all who can interest and instruct their readers. We have scattered through the country thousands of medical men, increasingly well instructed, many of them being zealous and not too busy. We have in our corporations an increasing number of young Fellows and Members with all kinds of scientific knowledge at command, eager for research and for work of every sort. It seems to me, therefore, that we have ready to our hands the means, firstly, of setting up a health

authority which would command respect and confidence, and, secondly, of instituting a health propaganda to educate, to persuade, and to form a "health conscience" among our people, the new health organisation neither superseding nor interfering with any existing effort or work. On the contrary, it would stimulate and back up every such means of improving the physical and mental condition of our people. Such work should be entirely altruistic, scientific, and free from what might be called professional selfishness. No "professional interests" of any kind whatever should come into this work. Religion, morals, politics, and free education have all been pressed on every individual of our people systematically and by many organised or legal authorities. Science alone has not taken its place as an all-pervading factor in the making of the modern man and of modern society, and of all branches of science those relating to man's life and health should surely come first for the mass of a people. They concern him immediately from the cradle to the grave. The attempt to take up this work would, I believe, do our corporations and profession an enormous amount of good. It would give us a higher sense of public responsibility to our fellow citizens and a higher and more altruistic ideal of our duty. It would teach us to take larger views of disease, for we would more habitually think of its prevention and its predisposing rather than its exciting causes. It would give a special opportunity for the exercise of the talent of popular exposition of health subjects by pen and voice which some men specially possess. It cannot do any individual or any corporate body any harm to have "a mission" for race improvement and race health. We have hitherto had too little of this feeling among us, our individual patients being too exclusively considered, the community too little thought of. To our country brethren it should give more of a feeling of professional solidarity and less of individual isolation. This in every way would do them good. They would thus be in frequent communication with our corporations, we would learn much from them. The public would gradually come to look on every medical man as being a public benefactor and an essential element of a well-organised society. The healthier a community became the more the medical man would be called in to avert the curse of disease.

As to the means by which a health propaganda might reach the masses of our population they would have to be exceedingly varied. It goes without saying that to do much good and to establish the "health conscience," which should be the ultimate goal of our labours, continuous iteration of the commonest health axioms would be required. The repetitive principle of the weekly service and sermon of the church would have to be adopted. The parent, the teacher, the clergyman, the public man, the politician, and the newspaper editor would first have to be interested and instructed and then enlisted in our cause. The press must, I am convinced, be our chief pulpit. Its use for this particular service of humanity has been most unaccountably neglected. All men do not now go to church but every man reads the newspaper. The medical press, the medical societies, the original investigators, the reports of the medical officers of health, the medical books, the university lecture-rooms would supply the pabulum. This would require continuous, judicious, and laborious assortment and condensation. Why should the "tract" almost always be a religious tract? or the "leaflet" commonly a political instrument? I see that for a political propaganda in one city 300,000 "leaflets" are to be circulated. A suitable literature for systematic teaching would soon come into being if it were demanded and in constant use. Health primers could be easily and cheaply got up. The country practitioner, well educated as we now turn him out, would be a living voice for health and would locally direct and use all those agencies as the clergyman uses his Bible, Prayer-book, and sermon and as the schoolmaster uses his school-books. He would also organise health workers, as the clergyman, the politician, and the philanthropist organise their bands of helpers. My contention is that our corporations could effectually assist and stimulate him in this work.

Let us imagine a community with a "health conscience," a health idea, and sufficient health knowledge. Pregnancy and parturition would become safer and be bereft of many of their gloomy forebodings. Lactation, child feeding, and nurture would be based on scientific knowledge, new milk and pure milk only would be given to children, the mortality among children under the age of five years would fall 50 per cent. in our cities and the meaning and the use of play would be understood. Child sleep and clothing would follow nature's law, the mental and bodily development of the child would be closely studied, and the risks and danger signals would be understood. Simple but accurate observations of child growth and progress would be made. The medical man would be called in for advice as to defects and arrestments of development at early periods. The effects of good air and bad air breathed by children would be appreciated. Stock would be taken of every child by the medical man and the parent before the technical process of school education began. The teacher would have far more physiological knowledge of the human brain and human body than he has now. The distinctions between physiological and moral sins would be made at home and at school. All schools and each scholar would be under medical inspection. The brain as the organ of mind and the body as the organ of the brain would during the developmental process be treated on sound physiological and psychological principles. School games, drill, and exercises would be systematised. Education would have a far fuller and more rational significance to the parent and teacher. The real meaning and the risks of puberty and adolescence would be far better understood. The sex question would be looked at more rationally. The choice of occupations and residences would be considered from the health side and the idea of organic fitness introduced. Moral and religious training would go hand-in-hand with health training and would be considered a part of it. Ideas of right and wrong would be made to apply to the body as well as to the mind. To break nature's laws as they affect any human being would be regarded as sin and would be followed by contrition and amendment. A "health conscience" would be established as an integral part of every man and woman's nature. Adverse heredity would be recognised and counteracted in every possible way. The all-important marriage question would have some science and reason as well as emotion come into it. The tremendous responsibilities of maternity and paternity would be better realised. Deliberately to choose to live in a crowded or unhealthy neighbourhood would be regarded as suicide is now. To use alcohol in excess and to indulge in sexual vice would be equivalent to losing self-respect and manliness. Health would be idealised and longed for as beauty is in woman. It would be taken for granted that all ordinary diseases may be prevented and that their existence is scandalous. To neglect any measures for the improvement of human health would in any government be regarded as *ipso facto* a reason for its instant dismissal. A sense of organic well-being, the most certain of all proofs of health, would be aimed at for individuals and for society. The meaning and the proper treatment of old age would be understood. Disease and death would be more painless than they commonly are. Life would be far more efficient than it is at present. The irritability and pessimism of man and woman would lessen. Men, and especially women, would get far more out of life than most of them now do. The efficiency of the worker would be greatly increased. The money value of a man would go up greatly through the improvement of his size and strength and nervous energy.

No doubt the criticism of such propositions as I have made will commonly be—"We agree that all this is most desirable in theory but how is it to take practical effect and become a working scheme?" "Why not rather strengthen and broaden the existing agencies?" I must, therefore, in order to answer this most relevant question, try to suggest the basis of a working project. 1. The three medical corporations would each separately first discuss the proposal in all its bearings and then, if the general principle is approved, discuss it together. 2. If no insuperable initial difficulties present themselves to the Fellows the corporations would appoint a large and representative joint health committee with powers of inquiry and suggestion. 3. This joint committee would put itself into communication with public health officers, with representative medical men all over the country, with public health organisations at home and abroad, with public bodies, clergymen, teachers, and with any other person who could give practical information and advice as to unoccupied health fields. 4. The joint committee would then report the result of these inquiries and deliberations and formulate a working scheme to the corporations, who would finally discuss, amend, and authorise or decline it. 5. The cost of the working of any

such scheme would be a most important element for consideration and arrangement by the corporations. It is possible that on account of its obvious importance to the people and the State and its philanthropic nature the public would place funds at the disposal of the corporations for carrying it out if it were suitably brought before wealthy and public-spirited citizens. 6. The scheme being essentially an educative, not an administrative one, and its great aim being to reach the masses of our people, the most efficient means of such education would be the prime consideration, and the press and the other agencies mentioned in this paper are, therefore, obviously indicated as the chief of such means of education in health knowledge, resulting in health improvement and in the creation of an efficient "health conscience."

OBSERVATIONS ON MASTICATION.

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I.

THE EFFECTS OF MASTICATION.

THE primary object of mastication is to break up the food so as (1) to facilitate the swallowing of it and (2) still more important, to insure its intimate admixture with the digestive juices, not only within the mouth but throughout the entire digestive tract. Mastication has, however, other important and far-reaching effects. Thus it promotes the flow of saliva and, when properly performed, secures a due insalivation of the food; it increases the quantity of alkaline saliva passing into the stomach; it stimulates the heart and circulation; and it finally influences the nutrition of the jaws and their appendages by stimulating the local blood and lymph circulation. Now to consider these various objects and effects of mastication.

Mastication facilitates swallowing.—Many foods cannot be swallowed without first going through some preparation in the mouth. Soft, moist, pultaceous foods, such as milk-pudding and porridge, can be and often, indeed, are swallowed with little or no preliminary chewing. On the other hand it is a mechanical impossibility to swallow large lumps of tough food, or very dry food, even though, like flour, it be in a finely divided state; dry food needs first to be well moistened and it is not surprising that it promotes a more abundant flow of saliva than moist food, though the secretion thus excited may be poor in ferment. Hence it follows that if we desire to give foods which compel mastication they should be tough or dry. On the whole vegetable foods necessitate more thorough mastication than animal. The carnivora can scarcely be said to masticate at all the flesh which they consume: they simply tear off portions and forthwith swallow them whole. (Cooked flesh, however, does require mastication owing to the coagulation of its proteids.) The herbivora, on the other hand, unlike the carnivora, have to subject their food to considerable mastication before it can be swallowed, but they generally masticate it far more than is needful to render swallowing mechanically possible, as is exemplified in the act of rumination, the object here being to facilitate the admixture of the digestive juices with the food.

According to van Someren if the habit of masticating efficiently is once acquired the food is not swallowed before it is converted into the liquid state, the swallowing of unmasticated lumps being effectually prevented by a pharyngeal reflex.

Mastication by breaking the food up into small particles enables it to be brought into intimate contact with the digestive juices.—Such comminution is especially needful in the case of raw vegetable foods of the tougher kind in order to break up their cellulose framework and to set free the contained starch, proteids, and fats. Foods of this kind, unless masticated, yield practically no nutriment to the organism. I cannot too strongly emphasise the fact that before man learnt to break up the cellulose framework of his vegetable food by cooking, he was compelled to subject it to laborious mastication. But while thorough comminution is especially needed for vegetable food when raw, it is also needed for many cooked forms of it also, as, for example, solid batter pudding and new underbaked bread, heavy lumps of which passing into the stomach may seriously hamper the work of that organ. Such substances are indigestible, essentially by virtue of their impermeability to the digestive juices, and they gain in digestibility in proportion as they are comminuted. The indigestibility of new bread would appear to be wholly due, not to any peculiarity of chemical composition, but to its tendency to elude the teeth and form a sodden mass impermeable to the digestive juices, while the more powdery stale bread is more easily broken up both in the mouth and within the stomach. Cabbage, again, owes its indigestibility to the fact that it is allowed to pass into the stomach in large masses, while the well-known digestibility of cauliflower and minced spinach is due to the fineness of their division; were cabbage as finely minced as spinach usually is it would be equally digestible.

Turning now to animal food it has to be remarked that while in the raw state it may be readily digestible with little or no previous mastication, since massive pieces of it are readily attacked by the digestive juices, the like is much less true of animal food the proteids of which have been coagulated and rendered less permeable by cooking. Large lumps of hard-boiled egg or overdone meat, for instance, may obstinately resist gastric digestion; indeed, as with vegetable so with animal foods, their relative digestibility depends more upon physical consistence than chemical composition; beef is generally more indigestible than mutton and pork or veal than either, not so much by virtue of chemical composition as of physical consistence; the indigestibility of cheese illustrates the same truth; the individual nutritive ingredients of this substance—the proteids and fats—are not in themselves indigestible: casein in the form of protein or plasmon is known to be easy of digestion and butter is one of the most digestible of fats, but in cheese the two are welded together into a comparatively impermeable mass which is apt to escape comminution by the teeth and to pass down into the stomach in the form of solid lumps. A plain, wholesome cheese well masticated or intimately mixed with other foods, as in macaroni cheese, is quite easily digested by the majority.

I do not, of course, deny the influence of the chemical factor. Undoubtedly food may disturb digestion by virtue of its chemical composition apart altogether from its physical characters; thus while cooked goose-fat sets up violent irritation in some, others cannot tolerate eggs in any shape or form, and innumerable idiosyncrasies in respect of special articles of diet are met with which are essentially referable to chemical composition; but making due allowance for this chemical influence there can, I think, be little doubt that the digestibility of the more common articles of diet, both animal and vegetable, depends in the main upon their physical constitution, *all of them tending to be equally digestible when reduced to the same degree of comminution.* This, if true, is, I need scarcely say, a fact of the greatest practical importance, for it amounts to this: that we may often allow to those with very weak digestions foods which are generally considered indigestible, provided that they be thoroughly comminuted, whether by mastication or artificial means.

Mastication promotes the flow of saliva and the insalivation of the food.—The more efficiently food is masticated the greater is the salivary flow, and the more intimately is it mixed with the saliva, or, as we say, insalivated. The saliva has apparently no effect on fats; whether it acts on proteids seems more doubtful, though by some authorities the penetration of these by the alkali of this fluid is said to aid in their subsequent digestion; on starch, however, the saliva acts very potently and hence mastication plays a special part in promoting the digestion of starchy foods. Indeed, if only mastication be persisted in long enough, starch may be wholly converted into maltose within the mouth, and it need scarcely be said that it is better for the individual himself to manufacture his maltose in this way than that he should take it ready made for him in the form of one of the many "malt extracts" on the market. Patients are often forbidden starchy food, while they are allowed the maltose which they can quite well manufacture in their own mouths. Provided they be sufficiently insalivated there are few starchy foods which are indigestible, not even excepting the proverbially indigestible new potato. These remarks are especially applicable to children as will be more particularly insisted on later.

Mastication increases the amount of alkaline saliva passing into the stomach, and this not only prolongs the period of starch digestion within this organ, but by its influence upon

the reaction of the gastric contents influences all the digestive processes taking place there. I shall have occasion to point out later that a deficient supply of alkaline saliva in the stomach predisposes to certain forms of indigestion.

Mastication acts reflexly upon the stomach.—It is now known that the act of mastication influences the stomach reflexly, promoting the flow of gastric juice and thus preparing the stomach for the entrance of food into it. If the œsophagus of a dog is cut so as to allow the swallowed food to escape instead of passing into the stomach, it is found that the mastication of food causes a considerable flow of gastric juice. Food introduced into the stomach unaccompanied by mastication is less effective in promoting the gastric flow. It is probable that the influence of mastication on the flow of gastric juice is largely produced through the medium of psychic influences, for the more efficient the mastication the more is the sense of taste affected.

Mastication stimulates the heart and so promotes the general circulation.—This stimulating action may be partly due to its local action on the flow of blood and lymph in the jaws and accessory parts, and partly to a reflex influence, but whatever the explanation there can be no doubt of the fact. Hence the mere chewing of a non-nutritive substance, such as gum arabic, is stimulating and, doubtless, the stimulating effects induced by the chewing of such articles as tobacco and betel are largely to be explained in this way.

THE INFLUENCE OF MASTICATION ON THE JAWS AND ADJACENT STRUCTURES.

This subject is of such importance that it needs to be dealt with in some detail. By "adjacent structures" I mean the masticatory muscles, tongue, teeth, salivary glands, the nasal passages and sinuses pertaining thereto, the naso-pharynx, soft palate, and tonsils.

The muscles of mastication.—Let me at the outset draw attention to certain anatomical points in connexion with the muscles of mastication. These are (*a*) their massiveness; (*b*) the very close relation of the pterygoids to the naso-pharynx; and (*c*) the outward direction of the pterygoids.

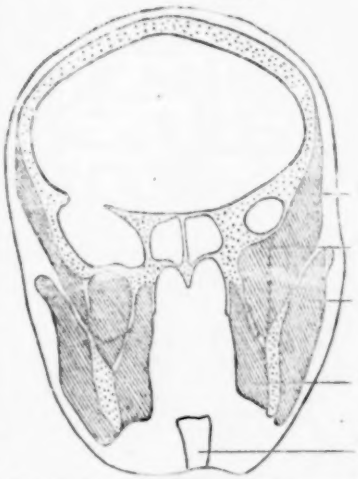
(*a*) It is not until one studies the muscles of mastication closely that one comes to realise their massiveness. Their large size in relation to the bony structures in connexion with them is well shown in a vertical transverse section of the head carried through the ascending ramus of the mandible[1] (see Fig. 1). It is evident that the functional activity of so large a mass of muscle tissue cannot but exercise considerable influence on the nutrition of the neighbouring parts.

(*b*) The pterygoid muscles, springing as they do from the internal pterygoid plates, must necessarily be in close relation with the naso-pharynx, especially the internal pair, which take their origin from the internal aspect of the internal plates. I would further point out that the external pair, although they diverge from the naso-pharynx on their way to the mandibular condyles, yet remain on a level with that cavity. This close relation of the pterygoids to the naso-pharynx is, if I mistake not, of great importance in relation to the etiology of "adenoids."

(*c*) Of the two pairs of pterygoids the external pair pass in the more outward direction, forming with the sagittal plane of the head an angle of 45° (see Figs. 1 and 2). In consequence of this direction they tend by their contraction to pull the pterygoid plates and posterior parts of the maxilla away from the sagittal plane of the head and thus to secure the normal width of the posterior nares. It is these muscles which bring about the lateral movements of the mandible causing the lower teeth to move laterally and sagittally across the upper, the food being in this way far more effectually ground than by a mere vertical pressure of the teeth against one another. These lateral movements are, as we shall see, less pronounced among the moderns than among primitive peoples.

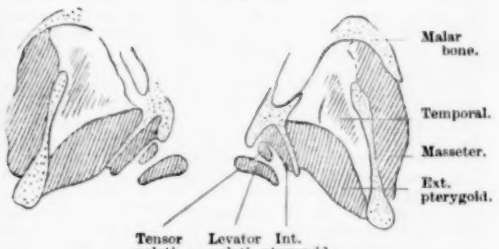
The influence of the contraction of the masticatory muscles on the local circulation of blood and lymph.—When a muscle is at rest the blood flows sluggishly through it, while there is a complete, or all but complete, stagnation of the lymph current; if a lymphatic trunk of a limb at rest be cut no lymph escapes from it. Rhythmic muscle contractions, however, stimulate the flow both of blood and lymph (*a*) in the contracting muscles themselves and (*b*) in the neighbouring parts. (*a*) Not only are the muscle arteries dilated during rhythmic contractions, but the blood is vigorously squirted out of the muscle veins, so that much more blood flows through a muscle during its rhythmic contraction than during rest. The flow of lymph is even more markedly stimulated, this fluid, which while the muscle is at rest is stagnant or all but so, being during contraction driven actively along the lymphatic trunks. (*b*) How greatly rhythmic muscle contractions influence the circulation of fluids in the neighbouring parts is shown by the flushing of the skin and the swelling of the soft parts generally of a limb which is being exercised. We thus see how profoundly the exercise of the masticatory muscles—and among these we must not forget

FIG. 1.



Vertical transverse (slightly oblique) section through the head on a level with the epiglottis. The massiveness of the system of masticatory muscles is apparent.

FIG. 2.



Portion of horizontal section of head about an inch below the condyles of the lower jaw. The outward direction of the external pterygoids is well shown; also the close relation of the levatores and tensores palati with the internal pterygoids.

to include the tongue—influences not only their own nutrition but that of the important structures adjacent to them—that is to say, of the jaw-bones, salivary glands, buccal mucous membrane, soft palate, faucial tonsils, pharynx, and naso-pharynx, as well as of the nasal cavities and their accessory sinuses. All these parts are during mastication copiously flushed with blood and lymph, from which it is evident that efficient mastication must stimulate their nutrition and favour their proper development. Hence in one who has from childhood upwards been accustomed to masticate efficiently we generally find these parts well developed, the jaws large and shapely, the teeth regular and straight, the tongue and salivary glands large, the nasal and naso-pharyngeal passages spacious, and the mucous membrane of the buccal and adjoining cavities healthy.

Influence of mastication on the jaw-bones.—It is well known that the size of a bone is largely determined by the degree to which the muscles attached to it are exercised.

[1] Dental surgeons now speak of the upper jaw as the maxilla and of the lower jaw as the mandible.

That the jaws do not grow to their normal size if not adequately exercised during their period of growth is strikingly shown by the overcrowding of the teeth which takes place in those brought up on soft foods and this even though there be no contraction of the jaws resulting from mouth-breathing. The dependence of the size of the jaws upon the degree to which they are exercised is also shown by the smallness of the modern jaw as compared with that of primitive peoples, a difference which, as we shall see, is in part congenital and in part due to the comparative disuse of the former. Mastication influences not only the size but also the shape of the jaws (*a*) through its influence on the size of the tongue, which by pressing against the teeth tends, as Sim Wallace has shown, to expand the jaws; (*b*) by the pressure of opposing teeth against one another, which has a similar effect; and (*c*) by the outward pull of the pterygoids, which tends to widen the maxilla posteriorly and to broaden the posterior nares.

Influence of mastication on the teeth.—The teeth being developed within the jaw-bones and remaining, even after eruption, in close anatomical and physiological association with them, must necessarily share in their nutritive tendencies. If these bones are efficiently exercised during the formation of the teeth—and my remarks apply especially to the permanent set—the tooth-germs will be abundantly flushed with blood, while the ample growth of the jaws themselves will provide the germs with plenty of room in which to grow and to develop, and the more perfect their growth and development the more resistant should we expect them to be to the ravages of caries. Who can contemplate the jaw-bones of a six-years-old child, dissected so as to display all the imbedded teeth, without being assured of the effect of mastication upon dental development? 52 teeth meet the view: the whole region from the orbital rims to the inferior border of the mandible is literally paved with them, and I can hardly doubt that they collectively weigh more than the bone in which they are imbedded. Surely no one can examine such a dissection without being convinced of the urgent necessity, if the teeth are to grow and to develop normally, of giving the child's jaws from infancy onwards plenty of work to do.

The ample development of the jaws which efficient mastication brings about has a further beneficial effect as regards the teeth in that it enables them to take up their proper places in the alveolar ridges, thus securing all the advantages of a good "bite." These I now proceed to consider. The teeth during mastication, and especially when the bite is good and the food of a kind necessitating vigorous and sustained mastication, are made to move in their sockets both vertically and horizontally; the effect of this is to stimulate the circulation in the tooth-pulp, the alveolar periosteum (and hence also in the cementum and alveolar walls which are supplied by it), and the circumjacent mucous membrane of the gum. All this makes for the health of the teeth; not only does it promote the nutrition of the tooth itself and of its bony socket, thus maintaining a firm dental setting, but it also tends to secure a healthy environment for the exposed part of the tooth—that part, namely, wherein caries begins—by maintaining a healthy state of the surrounding and, indeed, of the entire buccal mucous membrane, as well as of the various secretions which bathe the mouth. Wherefore it is not surprising to find that those who masticate efficiently suffer much less from dental caries and its complications (such as abscess at the root) and disease of the periodontal membrane (e.g., pyorrhœa alveolaris and loosening of the teeth) than those who are accustomed to bolt their food.

A few words as to the influence of mastication in wearing down the teeth. In those races which masticate vigorously the teeth in quite early adult life show signs of wearing away, while in later life it is quite common for the biting surfaces to be worn flat; sometimes the crown of the molars is worn away so that its surface shelves downwards and inwards and not infrequently it is concave, having a scooped-out appearance; often the dentine is exposed in this way; and yet among many hundreds of skulls examined I do not remember to have seen one single case where caries has started on the biting surface thus worn down.

I had always attributed this wearing down of the teeth to the friction of coarse food against them. Primitive races eat coarse vegetable food which frequently contains grit and this doubtless helps to grind the teeth down, but they may be markedly ground down even in those living on soft food, and in such cases the grinding away can obviously only be due to the friction of opposing teeth against one another. I, indeed, believe this to be the essential cause of the phenomenon, both in civilised races living on soft food and in primitive races whose coarse food necessitates prolonged and vigorous mastication and a corresponding amount of attrition between the biting surfaces of opposing teeth. In order that this attrition may occur two things are requisite: the upper and lower teeth must be well opposed—there must be a good bite—and mastication must be vigorous and of the right kind. Mere vertical pressure of the teeth against one another will not wear away the opposing surfaces; there must be friction of these surfaces against one another—a transverse and sagittal movement of the lower teeth against the upper by means of the pterygoids. Mainly to this do I attribute the marked wearing down of the teeth observed in primitive peoples, and I am gratified to know that so competent an authority on dental pathology as Sim Wallace is a convert to this view.

That all the teeth may be worn down just as we observe in primitive people, even in those who have lived all their lives on the ordinary fare of the moderns, is proved by a case I have under observation. It is that of a man in his fiftieth year, who was brought up in Belgium but who has resided in London for the last 30 years. When he came to my out-patient room I was not a little surprised to find that all his teeth were sound—a very unusual occurrence, I need hardly say, among the London poor at his age. In seeking for an explanation I elicited the fact that he was unable to swallow his food without chewing it very thoroughly, and on giving him a moderate-sized piece of bread with the request that he should chew it in the ordinary way I found that he subjected it to 120 separate bites before swallowing it, and in the steady, deliberate way he went to work and in his extensive lateral movements of the mandible he reminded one for all the world of a cow chewing its cud. The temporals and masseters of this man are enormous and the like is no doubt true of the pterygoids; he has well-developed nasal passages, has never suffered from nasal obstruction, while his buccal mucous membrane is unusually healthy for one of his years and circumstances. May we not attribute this healthy state of the mouth, teeth, and nose to the good effects upon them of efficient chewing? Here is a man who has lived for 30 years in London on the same kind of food as the average poor Londoner, but instead of finding his mouth full of carious, tartar-coated teeth, and spongy, receding, pus-exuding gums, we find 32 sound teeth firmly set in healthy gums and all but devoid of tartar.

A word as to the wearing down of the teeth in the anthropoid apes. In this respect the gorilla differs markedly from the orang and the chimpanzee. In all the skulls of these latter which I have examined the teeth show signs of wearing away, while I have found the teeth of the gorilla, with the exception of the tusk-like canines, but little worn. From this we should expect the latter animal to be mainly carnivorous, and the orang and chimpanzee to be largely herbivorous.

(To be continued.)

THE TREATMENT OF ANEURYSM BY SUBCUTANEOUS INJECTION OF GELATIN.[1]

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ANEURYSM is such a desperate disease and one which so frequently terminates in a tragic and sudden manner that any treatment which offers a fair chance of success deserves to be seriously considered.

The method of subcutaneous injection of gelatin, first recommended by Lancereaux in 1897, is the latest and most promising medicinal means by which it has been attempted to lessen the dangers and miseries attendant upon aneurysmal dilatation of an artery. A fuller knowledge of Lancereaux's means of cure and of its capabilities for good or evil can

[1] A paper read before the Royal Medical and Chirurgical Society on June 23rd, 1903.

only be achieved by a record of the results attained in the cases subjected to the treatment which he advocates. That the risks are considerable is amply evidenced by the recent unfortunate experience at Guy's Hospital where two patients died from tetanus in the course of treatment by this method. Both patients—the one a carter, aged 37 years, and the other an engineer's labourer, aged 33 years—were the subjects of aortic aneurysm, but though these men died from tetanus a third patient who was about the same time treated in the same way for the same disease was discharged from the hospital apparently cured. Too much stress must therefore not be laid upon the unfortunate result in the cases referred to, and it must not be concluded that the tetanus spores, highly resistant though they are well known to be, existed in the gelatin used, which had been carefully subjected to prolonged and thorough processes of sterilisation. The fact of the third patient having escaped such an untoward complication is, indeed, of itself almost sufficient evidence that the contamination arose not from the gelatin but from some outside source which it was found impossible to trace. Though Lancereaux's plan of treatment seems to have failed in some cases, there are many in which it has been attended by results sufficiently brilliant to attract attention and to warrant hopeful anticipation. Where an aneurysm is so situated that it can be dealt with by surgical methods these will probably continue to be regarded as the safest and most reliable means of treatment to which the patient can be subjected; but in cases—and they form no small proportion of the sum total of this formidable disease—which are beyond the reach of the surgeon's aid any means by which the misery and suffering may be mitigated, or the risk of sudden death from rupture lessened, must be welcomed as an advance in the progress of the therapeutic art.

In a paper by Lancereaux and Paulesco[2] it has been pointed out that non-success often arises either from faulty application of the method or from its use in cases of fusiform aneurysm, where the chances of amelioration are comparatively slight. In 1895 M. Dastre claimed to have proved that the injection of a solution of gelatin into the veins of a dog rendered the blood more coagulable, but his results are not universally accepted and it seems not yet to be certain how far the injection of gelatin into the cellular tissue of human beings can produce an effect on blood coagulability. Nevertheless, there is a considerable mass of evidence which goes to prove that it undoubtedly does exert such an influence. It is difficult otherwise to explain the marked improvement as regards their most urgent and painful symptoms which aneurysmal cases experience when treated by it. If a restricted diet and complete rest in bed are associated with the use of gelatin improvement from these measures may readily be fallaciously ascribed to the injections, but cases do occur in which patients have failed to respond favourably to the ordinary and accepted dietetic, drug, and rest treatment and yet have experienced striking relief when to these influences has been added that of gelatin injected into the intermuscular spaces.

The first use of gelatin as a curative injection for aneurysm was reported by Lancereaux to the French Academy of Medicine in June, 1897. The patient was an embroiderer, aged 46 years, who presented all the classical signs and symptoms of an aneurysm of the ascending aorta, which had advanced to such a stage that the skin over the surface of the tumour was thin and ecchymotic. On Jan. 20th a first injection of 20 cubic centimetres of a sterilised saline solution of gelatin was administered into the subcutaneous tissue of the left buttock. Following on this, Lancereaux's report tells us, there was produced a little redness at the seat of injection and the temperature rose to 38° C. The next day a normal condition was re-established and in addition it was demonstrable that the tumour had become manifestly more firm and the pulsations less forcible. For some days afterwards it diminished a little in volume and—what was still more remarkable—the pain completely disappeared and the patient was able to assume the dorsal position without experiencing either oppression or paroxysmal cough. But soon the tumour resumed its original dimensions; its walls again became soft and the blood could once more be felt forcibly driven against the skin while coincidently the intercostal pains re-appeared. A fresh injection of 150 cubic centimetres made on Feb. 10th was followed by the same result as the first but this time without reaction either local or general. Subsequently 11 similar injections were given at intervals of a few days, the last being administered on May 7th. By that time the tumour had diminished by two centimetres in the vertical and one centimetre in the transverse diameter; it was very firm and on palpation, though pulsations could be felt, there were pulsations *en masse* transmitted by the aorta and not expansile pulsations such as the patient presented when first seen. The man no longer suffered any pain and so strongly insisted on going out that he was discharged on May 25th. "In face of this result," says Lancereaux, "which was achieved under our observation, it is difficult, if not impossible, despite therapeutic scepticism which is not inconsistent with an ardent faith in medicine, to refuse to the means employed a substantial utility, for without it our patient would have perished. Therefore we do not hesitate to recommend this method of treatment with which we have succeeded, more particularly since it is harmless and the only one applicable for the treatment of such internal aneurysms as are beyond the reach of surgical interference."

At a subsequent meeting of the French Academy on Oct. 11th, 1898, Lancereaux presented another report on this new treatment and recorded in detail five cases, in three of which complete cure had resulted, while in the remaining two death had occurred, in one instance from rupture of the sac and in the other from uræmia. He thus sums up the conclusions which were to be drawn from this further experience: "Gelatin introduced into the subcutaneous cellular tissue penetrates into the blood which it renders more than normally coagulable; and since this blood encounters in the aneurysmal pouch two conditions favourable to coagulation—namely, a retardation of its current and a vascular wall which is frequently uneven—there is produced a more or less abundant formation of clots which in time fill up the sac. Ultimately these clots contract, the pouch which contains them diminishes in size, and the pressure symptoms to which it gave rise diminish and disappear. If softening of the clot takes place the blood penetrates between it and the walls of the sac and the tumour is reproduced. Under such conditions, fortunately, coagulation again takes place readily. Gelatin, therefore, constitutes an excellent therapeutic agent which, if it does not cure true aneurysms, at least favours the natural process of their cure." At a meeting of the Académie de Médecine held on July 16th, 1901, Lancereaux and Paulesco related four further cases, all considerably improved if not permanently cured. Good results have also been recorded by, among others, Geraldini,[3] Buchholz,[4] Barth,[5] Sorgo,[6] and Mancini.[7]

At home the treatment does not seem, so far, to have been received with much enthusiasm or practised with much perseverance, but stray cases are recorded here and there throughout our medical literature of the past two years, and I understand that Dr. Maguire of the Brompton Hospital is about to record the results of his experience in a short series of patients treated by the gelatin method.

The following four cases go some way towards confirming the favourable view which Lancereaux has advocated. By experiment Lancereaux fixed the quantity of gelatin necessary to obtain a sufficient coagulability of human blood at 250 cubic centimetres of a saline solution containing two grammes per 100 cubic centimetres of gelatin, and from experience he found that several months are required during which at least from 12 to 15 injections are necessary to achieve satisfactory results.

According to Huchard a 1 per cent. is safer than a 2 per cent. solution of gelatin and an interval of from eight to ten days is advisable between each injection. I have not found it possible to introduce into the subcutaneous tissue more than 100 cubic centimetres without producing local pain and I have observed that even this amount must be injected slowly—over an interval of ten or twelve minutes—in order to avoid discomfort and over-distension of the skin. A considerable swelling is produced at the seat of injection but this entirely subsides within from 6 to 12 hours. The inner aspect of the thigh has been found a more convenient situation than the buttock; in one case where the pectoral region was chosen the patient complained of so much pain

[2] Bulletin de l'Academie de Médecine, July, 1901.

[3] Gazzetta degli Ospedali, February, 1900.
[4] Norsk. Mag. f. Laegevidensk, February, 1900.
[5] Münchener Medicinische Wochenschrift, April, 1901.
[6] Zeitschrift für Klinische Medicin, July, 1901.
[7] Riforma Medica, May, 1902.

that the experiment was not repeated. In all these four cases the patient was kept during his course of treatment confined to bed and the injections were repeated twice a week.

Concurrently with the gelatin treatment iodide of potassium was given in ten-grain doses three times a day and with it were combined minim doses of solution of nitro-glycerine (1 in 100) whenever the pulse tension became excessive or when there were anginal symptoms. The nitrogenous elements of the daily dietary were minimised and the amount of liquid allowed was kept within narrow limits.

The apparatus used by Lancereaux is somewhat complex; it will be found fully described at p. 358 of the fortieth volume of the *Bulletin de l'Académie de Médecine*. At Greenwich we contented ourselves with a glass syringe of 100 cubic centimetres' capacity, having metal fittings and an adjustable piston.

The gelatin solution was made after the following method, for the description of which I am indebted to Mr. Thomas Hart who was responsible for its preparation: "Gelatin, one ounce; chloride of sodium, 131 grains; sterile distilled water to 50 ounces. These are put into a flask, plugged with cotton wool, allowed to stand an hour or two for the gelatin to soften, and then the heat from a water-bath applied to effect solution. The flask is afterwards placed in a steamer for an hour and is subjected to this treatment on three consecutive days. Immediately before use the quantity to be employed—100 cubic centimetres—is again re-steamed." Every precaution is taken to insure complete asepsis not only of the solution but also of the patient's skin and of the instruments used.

The following account of the cases has been kindly compiled for me from the hospital records by Mr. Oswald Marriott.

CASE 1. *Aneurysm of the arch of the aorta.*—A man, aged 35 years, was admitted into the "Dreadnought" Hospital, Greenwich, on April 1st, 1902, for pain in the chest, with a pulsating tumour in the median line about the level of the second and third costal cartilages. The patient had noticed the pain for about five months. It first interfered with his doing his work at St. Helena in November, 1901, on the outward voyage to the Cape. On arrival at Port Elizabeth he had to go into hospital on account of constant pain and dyspnœa. Since then he had not been fit for any work and latterly had been unable to sleep at nights except for short snatches and then only if propped up in bed. The pain radiated down both arms, but was most severe on the right side. There was a definite history of syphilis contracted 14 years ago. He was addicted to alcohol and admitted that during the few weeks he had been ashore he had been drinking very heavily. On admission the patient was found to be a well-built and well-nourished man. He complained of constant, dull, heavy pain and distress in his chest, more marked on exertion. He was breathless and quite unable to lie down in bed on account of dyspnœa. The pulse was regular and of medium tension. The right radial was stronger than the left radial pulse. The temperature was 98·8° F. and the respirations were 24 per minute. On inspection in the middle line of the chest, about the junction of the manubrium with the body of the sternum, there was a large, circular, pulsating swelling causing protrusion of the bony and cartilaginous chest wall. The superficial diameter of the pulsating area measured five inches transversely and three and a quarter inches vertically. The skin over the swelling was red, tense, and painful. The pulsation was synchronous with the heart-beats and on palpation was markedly expansile. The note on percussion over the swelling was dull and the act of percussion caused a considerable amount of pain. The cardiac impulse was seen in the fifth left intercostal space in the nipple line; it was diffused and heaving; no thrill was detected. Over the cardiac impulse the first sound was impure, but on auscultation upwards towards the tumour the muffled sound acquired the character of a murmur. Over the tumour itself was heard a distinct systolic bruit, followed by a loud, accentuated second sound. There were fulness and throbbing in the vessels of the neck. Tracheal tugging was well marked. There was no notable impairment of the percussion note over the lungs, but on the right side behind the air entry was diminished and the respiratory murmur was high-pitched and almost bronchial in quality. The voice sounds were normal. The total area of hepatic dulness measured vertically in the nipple line four and three-quarter inches. There was a space of two inches between the upper margin of the hepatic dulness and the lower margin of the pulsating tumour, over which the percussion note was clear. The pupils were large and equal; they reacted to light and to accommodation. No alteration or impairment of movement of the vocal cords was noticed. Both patellar and plantar reflexes were normal. After a week's rest in bed, during which the temperature varied between 97·6° and 99° and the patient was always supported in the sitting position with a bed-rest, gelatin injections were advised. His distress was so great that he readily acquiesced. He was kept on a light nutritious diet, the liquid constituents being strictly limited. Alcohol was entirely withheld. He was also ordered a mixture containing iodide of potassium, carbonate of ammonium, and cinchona.

The front and inner surfaces of the thighs were shaved and the skin was cleansed with antiseptics. The first injection contained only 15 grains of gelatin in about 50 cubic centimetres of saline solution, the solution having been sterilised on three separate occasions and raised to boiling-point just before using. All instruments—the needle (a large exploring needle), the syringe (a glass syringe of 100 cubic centimetres' capacity), and the glass bottle—were also carefully sterilised by boiling. The puncture was made through the skin of the inner aspect of the thigh about two or three inches above the patella and the solution was injected warm. After withdrawal of the needle a gauze and collodion dressing was applied, also a pad of antiseptic wool with bandage to prevent irritation of the skin by contact with the clothes. The local swelling round the seat of puncture disappeared in about six hours. Every subsequent injection contained 30 grains of gelatin dissolved in 100 cubic centimetres of sterilised saline solution. The injections, to the number of 20, were given twice a week into each leg alternately. The temperature frequently rose to 99° on the night of the injection and on three occasions just exceeded 100°, but otherwise no abnormal symptoms ensued. Complete rest in bed throughout the treatment was insisted upon. The pain gradually disappeared; the patient slept well at night and was able after a short time to lie down flat. He expressed himself as getting better daily and was always anxious to be up and about. After he was allowed to leave his bed his movements and exercise were gradually increased and he asked for his discharge from the hospital on July 9th, 1902, saying that he felt no trouble in his chest at all. The pulsation was very much diminished; there was no pain on palpation or on slight pressure over the tumour. The patient was seen ten days after his discharge. He admitted that he had been drinking heavily while out of hospital and had been detained in one of the London infirmaries two nights previously on account of alcoholic coma. He had some return of pain but the signs were unaltered and with a few days' rest in bed his pulse quieted down and the pain disappeared again. He had had no trouble at the site of injection on the thighs.

CASE 2. *Abdominal aneurysm.*—A man, aged 47 years, was admitted into the hospital on April 26th, 1902, for severe pain in the epigastrium. The epigastric pain had been so acute as to interfere with his doing his work for the last five weeks; previously there was pain but much less severe. Lately it had been more or less continuous and was generally worse after food. It was of a tearing character and prevented the patient from lying down or keeping still. It radiated through to his back. Sometimes there were exacerbations of acute pain which quite "doubled him up." The patient was a West Indian. He readily owned to having freely indulged in alcohol, when ashore, especially in spirits. The history of syphilis was indefinite and there were no corroborative signs. He was married and had several children. On admission the patient was found to be a tall, well-developed man. The temperature was 98° F. and the pulse was 70, regular, full, and soft. The femoral pulses were equal and synchronous with the radial pulses. The respirations were 20 per minute and regular. The cardiac impulse was visible in the fifth intercostal space half an inch internal to the nipple line. The præcordial area of dulness was not increased. The heart sounds at the apex and over the second right and left spaces were normal. The abdominal walls were lax and thin. On careful inspection just below the epigastric notch and rather to the left of the median line there was a circular area of pulsation which corresponded with an ill-defined, readily felt tumour. The pulsations were expansile and synchronous with the heart-beats. There was marked tenderness on palpation over the epigastrium. The

liver was just felt below the costal margin. The spleen was not palpable. On percussion over the tumour the note was dull. The dulness was not continuous with the hepatic or splenic areas of dulness. Pain was complained of on even slight percussion. On auscultation over the centre of the tumour a loud systolic bruit was audible; this was quite localised and lost immediately below the tumour. No abnormal or adventitious signs were present in the lungs. Though the patient occasionally experienced pain shooting round to the back there was no tenderness on pressure over the vertebral spines behind or on pressure of the occiput downwards. The urine had a specific gravity of 1014, was neutral in reaction, and contained no albumin. The patellar reflexes were present and normal. The patient was kept at rest in bed, with light, nutritious diet and limited liquids, for three weeks. He was unable to lie down for many days, and hypodermic injections of morphia were necessary for the first fortnight to insure rest at night. He also had 15 minims of solution of hydrochlorate of morphia every six hours by the mouth. The bowels were kept acting freely. The condition was explained to the patient and he decided to undergo the treatment by subcutaneous injections of gelatin.

The first injection was given on the twenty-first day after admission. The inner aspects of the thighs were shaved and made thoroughly aseptic, and they were injected alternately—each thigh being used once a week. 12 injections were given. The first contained 15 grains of gelatin in 50 cubic centimetres of sterilised saline solution and every subsequent injection contained 30 grains in 100 cubic centimetres. There was no disturbance of temperature except on two occasions, on each of which it rose rapidly to 103° but fell within 24 hours. On both these occasions the injections had been given under the skin covering the pectoral muscles. The pain disappeared absolutely and the patient was allowed to be up and ordered gentle exercise. He asked to be discharged 18 days after the injections had been stopped. During the week before his discharge he was frequently given leave to visit the docks in order to arrange to get a berth home. This exertion caused no recurrence of pain. On examination before leaving the hospital a small, oval, firm mass, of about the size of a hen's egg, could be felt between the fingers and thumb; it was quite circumscribed and localised to the left side of the median line and about two inches below the ensiform cartilage. There was no pain on palpation. The systolic bruit persisted but remained localised. He was seen one month later, before he left for the West Indies. The improvement was then fully maintained and he expressed himself as grateful for being so completely relieved of his symptoms.

CASE 3. *Aneurysm of the ascending aorta.*—A man, aged 50 years, was admitted into the hospital on May 1st, 1900, for pain in the chest. There was no history of alcohol or rheumatic fever and no record of syphilis could be obtained. The patient was a West Indian by birth and had been a seaman all his life. On examination the cardiac impulse was seen in the fifth space on the left side and was situated half an inch internal to the nipple line. There were visible expansile pulsations in the second right intercostal space and less marked pulsations in the first space. On percussion the præcordial dulness was increased transversely and the note was dull over the area of pulsation, which extended from the first to the third rib on the right side and outwards to two inches to the right of the manubrium. On auscultation at the apex the sounds were normal; in the second left space the second sound was accentuated. Over the second right space was heard a loud systolic murmur two fingers' breadth from the right edge of the sternum and also a diastolic bruit conducted down the sternum. The radial pulses were unequal, the right being the stronger and the left slightly delayed. The carotid pulses were alike. The pupils were normal. No alteration of movement of the vocal cords was detected. No abnormal physical signs were found in the lungs or abdomen, but there was some expectoration which was occasionally blood-stained. The urine was clear, neutral in reaction, and with a specific gravity of 1010; it contained no albumin. The patient was put on a light diet, the amount of fluids being limited. He was kept at rest in bed and a mixture containing iodide of potassium and cinchona was ordered.

On the eighteenth day after admission the subcutaneous injection of gelatin was started and a solution containing just over 20 grains was injected under the skin on the inner side of the thigh, the skin having been previously shaved and properly cleansed. The injections were continued twice weekly after this, and the full amount of 30 grains in 100 cubic centimetres of sterilised saline solution was given each time. There was a slight reaction on several occasions at first, the temperature rising within 12 hours to 100° or 101° F.; and on one occasion some temporary local inflammation ensued at the seat of injection. The injections were given in the thighs alternately. The last, which was the twentieth, was administered on Jan. 27th, 1901. There was then no visible pulsation in the chest, but the pulsatile tumour was replaced by a firm resistant mass which on palpation still throbbed but faintly and without expansile extension. The impulse was still half an inch internal to the nipple line. There were a to-and-fro murmur in the aortic area and a systolic and short diastolic bruit at the apex. The patient was allowed out of bed and his exercise was regulated and gradually increased. He had no recurrence of pain and left the hospital on March 13th, 1901. For the week previous to his discharge he walked round Greenwich Park and Blackheath for two or three hours every morning without discomfort. The patient was seen three months later and then expressed himself as still feeling quite well. Subsequently he returned to the West Indies.

CASE 4. *Aneurysm of the ascending aorta.*—A man, aged 57 years, first came under observation in March, 1899. He improved during four months' treatment in hospital and remained out for three months; he was then in the hospital again for five months, during which he was treated with gelatin injections. On admission the patient was found to be a robust man but had lost weight recently and only scaled 11 stones in 1899. He had been a seaman all his life. No absolutely reliable history of syphilis was obtainable. There was no history of rheumatism. He first noticed pain in his chest in February, 1899. On examination there was marked flattening of the upper part of the thorax, especially on the right side. The cardiac impulse was seen in the fifth left intercostal space in the nipple line. Pulsation was visible over the whole sternum and over the third and fourth intercostal spaces on the right side. The præcordial dulness extended from the left nipple line to the right sternal margin below the level of the third rib; above this level the percussion note was dull behind the sternum up to the level of the first costal cartilage. No thrill was felt but in the fourth left space a sudden movement was detected accompanying the second sound. On auscultation at the apex the first sound was not well defined. In the second right space an occasional systolic murmur was heard. The radial pulses were unequal, the left being stronger than the right. The pupils were unequal, the left being larger than the right. There was slight œdema over the lower part of the chest on the right side, but this cleared up after seven days. "Tracheal tugging" was present. Over the upper part of the chest on the right side the breath sounds were feeble and behind a few mucous râles were heard at the apex and base. There were no signs of pressure on the trachea or œsophagus. Slight prominence of the upper dorsal vertebræ and corresponding ribs on the right side behind was evident. The patient required frequent hypodermic doses of morphia to produce sleep.

Gelatin injections were commenced on Oct. 12th, 1900, and were given twice each week. The pain quickly subsided and after 15 injections the patient was able to get up, having been in bed for many months. His convalescence was very slow, but after a few weeks he could walk about comfortably and went home on being discharged from hospital. He afterwards presented himself once a month for examination and could always get about well without dyspnœa or recurrence of pain.

The experience derived from such a small number of cases is not enough from which to formulate definite conclusions, but so far as it goes it tends to show: (1) that gelatin injections may, with proper precautions, be given subcutaneously with safety; (2) that they produce a marked and speedy decrease in all the subjective and in some of the objective symptoms presented by internal aneurysms; (3) that this relief of symptoms is only explainable on the theory of a diminution in pressure-effects from shrinkage in size of the aneurysmal sac; (4) that this diminution in size, accompanied with marked increase in the resistancy of the tumour wall, was capable of physical demonstration in three of the cases treated; and (5) that the after-histories of the patients, so far as they could be obtained, afforded

evidence that probably the beneficial results were permanent—that, at least, they had not been seriously invalidated by the habits and exertions of the patients between the date of their discharge and that of their being last seen.

Chesham-street, S.W.

A CASE OF RICHTER'S HERNIA.

BY JAMES W. FRASER, M.D., C.M. EDIN., M.R.C.S. ENG.,
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THE following case, before the operation, could only be diagnosed as one of subacute obstruction of the bowels from some internal cause.

A woman, aged 44 years, was first seen on Jan. 14th, 1903, when she complained of abdominal pain, chiefly hypogastric, and of vomiting of all food, the ejected matter being green from altered bile. She had had diarrhœa the previous evening, but the bowels had not acted since. There was no hiccough; the pulse was 64; the temperature was 99·4° F.; the tongue was clean, the abdomen flaccid, and no hernia could be felt; the stomach was somewhat distended with flatus. The patient stated that she was subject to "bilious attacks" and considered that this was one, only worse than usual. No definite diagnosis was made, but the intensity of the vomiting and the absence of any discharge of fæces or flatus since the night before caused a feeling that the case was more serious than she considered it. Practical starvation and a mixture containing morphia, podophyllin, and carbolic acid was the treatment adopted. On the next day the sickness and constipation continued, but anxiety was somewhat relieved on the 16th, when an enema produced a good action of the bowels. The general condition of the patient remained good, but she was still sick and the vomited matter contained bile. The pain was less severe and was now referred to the epigastric and umbilical regions. A mixture containing morphia, belladonna, and hydrocyanic acid relieved both the pain and the vomiting and produced an appearance of improvement, but two further enemata brought away only flatus and a third returned unaltered. On the 20th the abdomen had become much more distended though not at all rigid or tender, the distension being greatest over the cæcum and stomach and there being a feeling of resistance above the umbilicus. A tentative diagnosis of obstruction of the transverse colon and of the duodenum, possibly by some abnormality of the round ligament of the liver, was made, but, as was proved by the operation, was entirely erroneous; it was based on the bilious non-fæcal vomiting and the distension over the cæcum with the apparent resistance in the region of the falciform and round ligaments of the liver. Recto-vaginal examination disclosed nothing except that the uterus was retroverted and fixed in the pouch of Douglas and that the rectum was not "ballooned" as it would have been if the attack had been an exacerbation of some chronic obstruction.

An operation was advised as the only chance of saving life and was performed on the 22nd, the ninth day of complete obstruction, under ether anæsthesia. Before this the abdomen had become more generally distended but still without rigidity. In view of the diagnosis made on the 20th the intention was to open the abdomen above the umbilicus, but the generalisation of the distension casting doubt on its accuracy, a median incision about three inches long was made immediately below that point. As soon as the peritoneum was opened a coil of small intestine deeply congested and distended to quite the size of the colon presented. The fingers introduced into the peritoneal cavity could feel no constricting band nor could the cæcum be felt. The coils of intestine were therefore drawn out of the abdomen into sterile warm towels and passed in again, tracing the bowel until a coil was found which resisted traction and led down towards the pelvis. The coils were then with some difficulty returned into the abdominal cavity and retained there by an ovariotomy sponge while the incision was extended two or three inches towards the pubes, and when this part of the opening was held apart by retractors and light reflected by a forehead mirror into the pelvis, two coils of intestine, one distended and the other contracted, could be seen lying side by side and leading to the femoral opening on the right side. It could be seen and felt that only part of the circumference of the bowel entered this aperture; indeed, so small did the herniated portion seem that there was some doubt if a hernia existed at all or if it was merely an adhesion of the bowel to the parietal peritoneum which had caused it to kink. From the outside, even when guided by the finger of the operator within the abdominal cavity, no projection could be felt in the femoral region. The intestine was rather firmly adherent to the ring, but by a little manipulation with the finger nail and very gentle traction it was released and brought out of the wound for inspection. The herniated part was on the surface away from the mesenteric attachment, was of about the size of a hazel-nut, and was separated from the rest of the bowel by a deep groove, but except for a few adhesions near to this the peritoneal coat retained its lustre and a slight ecchymosis in the groove and a general thickening of the bowel wall were the only signs of damage. The lumen allowed the passage of the contents, though with some difficulty. A band of omentum was found adherent in the femoral ring and, after double ligature, about two inches of it were removed. The loop was returned into the abdominal cavity and this was flushed with sterile warm water, of which probably about a quart was allowed to remain to let the intestinal coils, which had been rather roughly handled and might have been twisted in their examination, float free and recover themselves. The wound was closed with a continuous peritoneal and interrupted muscular and cutaneous sutures and dressed with double cyanide gauze and wool and a many-tailed bandage. An enema of brandy and a subcutaneous injection of $\frac{1}{15}$th of a grain of sulphate of strychnia were given and the patient, who stood the operation well, was put back to bed. There was some leakage necessitating the changing of the cyanide wool during the afternoon, but after that the wound healed by first intention, requiring only two dressings, one on the 28th when some stitches were removed and one on Feb. 1st when the rest were taken out and the wound was supported by strips of indiarubber plaster; the buried sutures gave no trouble. The patient progressed steadily; another $\frac{1}{15}$th of a grain of sulphate of strychnia was given subcutaneously and she had brandy enemata and nutrient suppositories every two hours alternately on the 23rd. She only vomited twice from the effect of the ether and the bowels were moved on the 25th by an enema after a dose of calomel (two grains) and of magnesia mixture; they acted naturally on the 27th. She was allowed milk by the mouth on the 26th and boiled fish on the 27th. The temperature, at first subnormal, never rose above 99° F. and the patient was lifted out of bed on to a couch on Feb. 1st, walked on the 8th, and went home on the 11th.

From an analysis of 53 cases Sir F. Treves[1] shows that 50 per cent. were not diagnosed or operated on and that these all died. In a number, however, of other undiagnosed cases the herniated part of the bowel sloughed, causing first an abscess and then a fæcal fistula. Such cases have been reported by Owen,[2] Arnison,[3] von Kliegl,[4] and Bowlby.[5] One-third of the 53 cases had typical signs of acute strangulation, but in one-tenth there was an action of the bowels early in the attack. In the rest there were motions from time to time and in three diarrhœa, which ushered in the attack in this case, persisted throughout the illness. Vomiting was usually not severe and became less so in the later stages. The hernial tumour was difficult to feel and still more difficult to reduce.

This case then falls into line with the 10 per cent. of Sir F. Treves's cases. The diagnosis made was felt to be unsatisfactory so that the operation was undertaken for exploration and preparation was made for various conditions which might have been found as, e.g., an annular stricture blocked by scybala for which an enterectomy would have been required. Had the bowels acted from time to time it is probable that no operation would have been attempted and the case would either have ended fatally or at best developed a fæcal fistula. If a correct diagnosis had been made it is doubtful if an ordinary herniotomy would have been successful when the smallness of the protrusion and the firmness of the adhesions are considered and in any case the result could not have been better than that attained by the abdominal section.

Hull.

[1] System of Surgery, vol. ii., p. 701.
[2] THE LANCET, Feb 12th, 1887, p. 311.
[3] THE LANCET, April 11th, 1891, p. 826.
[4] Wiener Medicinische Presse, 1890, p. 202.
[5] THE LANCET, Sept. 25th, 1897, p. 793.

THE RELATION OF THE DENTAL PROFESSION TO PUBLIC HEALTH.[1]

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THE task of addressing you on this subject, which was light-heartedly undertaken at the request of my friend, Mr. D. E. Caush, I have found on reflection to be one of considerable difficulty. It is scarcely likely that one whose branch of medical work is very remote from that of the dentist can hope to express anything beyond commonplace on a subject which you as dentists have made your own. On the other hand I am comforted by the reflection that dentists, like medical men, will interest themselves in the wider problems of preventive medicine and will be equally anxious with them to extend that knowledge of the causes of disease which is the essential preliminary to their prevention. The medical profession in the nineteenth century has made enormous strides in the discovery of the causation of disease—the names of Jenner, of Snow, of Lister, and of many others are indissolubly associated with the history of this progress; and they have always been foremost in promoting measures for the prevention of the diseases out of which their livelihood is made. The secrecy of quackery is abhorrent to medicine and it will, I doubt not, be equally repudiated by the members of your profession.

A specious and most fallacious statement is made which if believed would paralyse all efforts for the prevention of disease. We are informed, with an assurance which unless we are very sceptical is apt to carry conviction, that all the measures of preventive medicine and public health—and among these the prevention of the spread of caries of the teeth should take an important position—only tend to keep alive the weaklings of the race and thus cause a deterioration of the general standard of national health. I have elsewhere indicated that for infectious, including tuberculous, diseases, this reasoning is most untrustworthy. The argument assumes that weakly children are more prone to attack by acute infectious diseases than robust children, an assumption which experience does not confirm. These diseases appear to attack the majority of children, weakly or robust, who are exposed to their infection. It is reasonable to assume that with a decrease of the total deaths from infectious diseases there has been at least a corresponding decrease in the number of those who are left maimed by an attack of one of these diseases to survive to adult life. Similarly with consumption, there is little doubt that the deteriorating effect of the survival of tuberculous persons is counterbalanced by the large number of persons who are prevented by improved sanitary and social conditions from becoming tuberculous.[2] And for dental diseases the argument is even stronger. In the struggle against infectious, including tuberculous, diseases many succumb and it is erroneously supposed that the survivors enjoy a greater stamina than would be enjoyed by a community which had not been exposed to these diseases. Dental diseases, on the contrary, seldom kill and the question is one simply of greater or less disablement. The cure, and still better the prevention, of dental diseases must therefore improve the prospects of health and insure a longer life than is possible to those having decayed and septic teeth.

Our national statistics are distinctly optimistic. So far from there being evidence of national degeneration, as commonly stated, all the exact evidence which is available tends to the conclusion that our national physique has improved, while we know that the death-rate has declined and that the expectation of life has improved. Between 1861–70 and 1902 the death-rate in Brighton has fallen from 25·6 to 15·8 per 1000 of the population, equal to a decline of 38 per cent.; while between 1881–90 and 1891–1900 the expectation of life at birth for males in Brighton has increased from 43·59 to 44·92 years, and at five years of age from 52·87 to 53·94 years.

Town populations are now living under conditions producing lower death-rates than those from which rural districts suffered 50 years ago. After a careful revision of all the available evidence on the subject I am convinced that there is no valid evidence of widespread national physical degeneration, but that in most respects the physique and health of the community have improved. The two main causes of this improvement undoubtedly are the increased abundance and improved quality of the two chief requirements for health—food and housing. Food is the supremely important factor in health, and, in my opinion, although immense good has been done by modern sanitary reforms, the cheapness of wholesome food following the abolition of the Corn Laws in 1846 effected more for the national health than any other influence during the nineteenth century. For that very large section of the population who appear to have been shown by the investigations of Mr. Charles Booth and Mr. Seebohm Rowntree to be constantly in extreme poverty, even a small difference in the price of food is a matter of vital importance, and he who would increase the food bill for these without insuring to them at least a corresponding increase of earnings is going far towards undoing the good achieved during the last 50 years and preparing the way for a higher sickness and death-rate and for much national misery.

But although there has been an immense improvement in the national health during the last 50 years this is not incompatible with the absence of improvement and even with deterioration in certain respects. I propose in the short time at my disposal to discuss the recruiting statistics of the British army so far as they bear on the question of the condition of the teeth of recruits and then to adduce such evidence as is available on the incidence of decay of teeth in different nationalities and at various periods. In Table I.

TABLE I.—*Showing the Number of Recruits of the British Army Annually Examined, with the Proportion of Rejections from "all Causes" and from "Loss or Decay of Many Teeth."*

Year.	Total number of recruits examined.	Number of recruits rejected per 1000 of the total number examined owing to	
		All causes together.	Loss or decay of many teeth.
1864	27,754	448·4	13·5
1865	24,891	452·8	18·5
1866	20,410	380·2	13·1
1867	26,646	377·9	16·6
1868	23,543	375·8	14·1
1869	17,749	375·2	11·8
1870	38,408	336·8	10·5
1871	36,212	331·8	12·5
1872	28,390	316·7	8·1
1873	24,895	303·6	7·6
1874	30,557	277·2	5·9
1875	25,878	257·4	6·0
1876	41,809	273·1	7·3
1877	43,803	293·1	8·9
1878	43,867	298·4	9·6
1879	42,668	326·7	9·5
1880	46,108	407·6	7·2
1881	47,444	432·6	8·2
1882	45,423	424·8	7·9
1883	59,436	397·0	10·5
1884	66,882	417·0	8·6
1885	72,249	400·5	8·9
1886	74,991	438·1	10·3
1887	60,976	452·2	13·0
1888	49,172	454·6	11·3
1889	53,902	411·5	10·0
1890	55,367	392·1	9·1
1891	61,322	373·6	10·9
1892	68,761	377·5	14·6
1893	64,100	405·5	15·3
1894	68,761	398·6	16·3
1895	55,698	404·8	18·0
1896	54,574	415·9	19·8
1897	59,996	372·9	24·2
1898	66,502	345·6	26·3
1899	68,087	324·2	25·3
1900	84,402	273·75	20·0
1901	76,750	280·42	26·7

[1] A paper read at the meeting of the British Dental Association, Brighton, June, 18th, 1903.

[2] Elements of Vital Statistics, third edition, 1899, p. 316 et seq.

are set forth the number of recruits annually examined and the proportion of rejections from all causes and from "loss or decay of many teeth."

There is no exact correspondence in the variations in the numbers in these three columns, but between 1880 and 1896 the proportion of rejections clearly increases when the number of would-be recruits increases. On the other hand, in 1900 the number rejected (except those rejected for defective teeth) declined although the number of recruits increased. The above figures appear to indicate that as a rule with the increasing demand on the population for voluntary recruits a lower stratum of society has been touched and the number of rejections from all causes has slightly increased and the number rejected because of defective teeth has increased to a greater extent. Table II. shows the relative numbers of various classes of recruits in different periods:—

TABLE II.—*Giving the Number per 1000 of all Occupations there were in each of the Groups 1 to 6 in the Years 1884–86 and 1893–99.*

Years.	Group 1.—Labourers, servants, and husbandmen.	Group 2.—Manufacturing artisans.	Group 3.—Mechanics employed in occupations favouring physical development.	Group 4.—Shopmen and clerks.	Group 5.—Professional occupations.	Group 6.—Boys under 17 years of age.
1884–86	636	142	133	56	10	20
1893–99	659	138	99	65	10	29

No very marked difference is shown in this table between the earlier and the later period, but there are minor differences which cannot be represented in the social classification shown in the table, and there is no reason to doubt that the class of recruit is determined to a large extent by conditions of national trade and prosperity, that in some years urban populations are more drawn upon than in other years, and that the local distribution of recruiting varies greatly; and these facts would, if properly classified and if we could be certain about the uniformity of the standard adopted in the medical examination of recruits, furnish valuable information. Meanwhile one can only obtain glimpses at the truth.

Confining ourselves now to the rejections for "loss or decay of many teeth," it is noteworthy that they were 18·5 per 1000 examined in 1865, that they then remained below this figure until 1896, when they again rose to 19·8 per 1000, reaching as high as 26·7 per 1000 in 1901. For the year 1902 I am informed that the figures to be shortly published will show a rejection for dental defects of 50 per 1000 examined. Are we to regard these figures as indicating an increase of dental caries among the classes from whom recruits are chiefly derived? The Army Regulation dealing with this matter is as follows:—

Extract from Army Medical Regulations.

Para. 535, ... The acceptance or rejection of a recruit on account of loss or decay of several teeth will depend upon the consideration of the relative position of those which are no longer effective: thus, the loss of several teeth contiguous to each other in the one jaw, leaving none to oppose those in the other jaw, would be a cause for rejection, but not the loss of a similar number distributed between the two jaws and in different positions. Again, the loss of many teeth in a man of an indifferent constitution would point to rejection, while a thoroughly robust recruit who has lost an equal number might be accepted.

The following official memorandum, dated December, 1901, gives further regulations:—

Memorandum.

Recruits who are found on medical examination to be wearing artificial teeth should not be rejected on that account *alone*. The examining medical officer should satisfy himself that the loss of the teeth in the first instance was not due to constitutional taint, &c., and secondly, that the artificial teeth are well fitted in every respect for the purposes of mastication.

(A note should be made when passing such recruits of the number of artificial teeth, plate worn, &c., in the Attestation and Medical History Sheets, as a distinctive mark.)

(S-I.) W. TAYLOR, D.G.

Army Medical Division, War Office, 12th December, 1901.

This allowed the enlistment of recruits with artificial teeth, but in February, 1902, the circular letter from which the following extract is given was issued and the above memorandum was cancelled in January, 1903.

Extract from Circular Letter dated 19th February, 1902.

There is a further point upon which there appears to be some misconception. No instructions have been issued to justify recruiting medical officers in accepting candidates whose teeth are not up to the standard required (see paragraphs 512 and 520 "Regulations Army Medical Service"). Recruits are not to be accepted and given artificial teeth, but non-commissioned officers and men are not to be invalided for defective teeth if their dental defects are so far remediable as to render them efficient soldiers.

I am, Sir, your obedient servant,

DEPUTY DIRECTOR-GENERAL.

The increased number of rejections for defective teeth from 1897 onwards is probably due in part to increased stringency of examination and still more to the fact that a large number of men of an inferior class to those previously examined have presented themselves. On the whole the figures detailed do not in my opinion justify the conclusion that there is now a worse condition of the national teeth than 40 years ago. Before 1864 army records are scanty. There are, however, scattered records which confirm my negative conclusion. Thus Mr. F. Roberts[3] states that in six months of 1838 out of 152 recruits examined by him in Ireland 53 were rejected. He adds: "Not being positive as to the fact, I have nevertheless strong reasons to suppose that generally a third of the recruits enlisted are rejected on account of physical capacity." He quotes a statement by Sir J. McGregor that "out of 613 men enlisted, almost all of whom came from Birmingham and five other neighbouring towns, only 238 were approved for service," and a statement by Dr. Armstrong that in the Leeds district in 1844 half the recruits were rejected. Dr. H. H. Massy[4] gives recruiting statistics for the United Kingdom for 1844–52 which show that 337 per 1000 were then rejected as compared with 370 per 1000 in 1864–1901, and 13·3 per 1000 for dental defects as compared with 13·7 per 1000 for 1864–1901.

On the whole the figures given above leave it still an open question as to whether there has been any marked increase in defective teeth among the general population during the last 60 or 70 years. They indicate clearly, however, the importance of dental caries from a military standpoint and the need for national action in the prevention of this disease in the interest of an efficient army as well as in the interest of the public health. The members of your association, and particularly the members of the School Dentists' Society, have collected most valuable statistics as to the condition of the children's teeth in industrial schools. My friend Mr. R. Denison Pedley examined the dental condition of 3800 boys and girls from three to 16 years of age. In these children 5678 temporary and 5017 permanent teeth were found to be unsound. Among the 3800 children there were only 828, or 21·8 per cent., of sound dentitions. Only one out of five children had completely sound teeth. In the light of facts like these the importance of the teaching of oral hygiene and of the employment of a dental surgeon in connexion with all industrial and other resident schools under public control cannot be exaggerated.

There is still ample scope for investigation into the amount of caries among different communities and I venture to urge upon your association the importance of collective investigation on these lines. What, for instance, is the influence, if any, of nationality? The facts appear to point to the conclusion that caries is less common among meat-eating races than among those in whose food starch and sugar form a large part. This may, however, be rather a question of food than of race, a surmise which is supported by the greater frequency of caries in women than in men and in children than in adults. Many native races, particularly the Zulus and Kaffirs, are stated to have very fine teeth. They are assiduous in cleansing their teeth after meals, this being done for children by their parents until they are able to do it for themselves.[5] It is stated that among civilised races four out of every five persons suffer from caries. If in every civilised country the results of examination of a large number of mouths could be collected and published the exact incidence of caries according to race might be determined. Meanwhile we must be contented with the figures already published. Those quoted by me in the following pages are derived from a most valuable paper by Mr. J. R. Mummery published in the Transactions of the Odontological Society of Great Britain for 1870. In 49 skulls of Zulus there was caries in six, in five very

[3] Cursory Remarks on Recruiting and Recruits, by Mr. F. Roberts, staff surgeon, 1852.

[4] Remarks on the Examination of Recruits, by Dr. H. H. Massy, 4th Light Dragoons, 1854.

[5] Goadby: Mycology of the Mouth, 1903.

limited. In 269 skulls of African slaves 28 per cent. were carious. In 29 skulls of Bushmen there was caries in six. In 71 skulls of Hindoos (Southern India) ten showed caries, in three of which six teeth were involved. In 152 skulls of Hindoos (Northern India) there were nine cases of caries. Of 27 skulls of Chinese 10 showed caries, eight very extensive. Of 132 Australian skulls 27 showed caries, often very extensive. In Table III. the chief facts collected by Mr. Mummery are collated.

TABLE III.—*Incidence of Caries according to Race.*

—	—	Number of skulls examined.	Number showing carious teeth.	—
				Per cent.
Native American Group.	Esquimaux	69	2	= 4·0
	Indians, N.W. ...	56	2	
	,, Inland...	23	2	
Australasian and Polynesian group.	Australia	38	2	= 13·8
	,, ...	132	27	
	Tasmania	39	9	
	New Zealand ...	67	2	
	E. Polynesia ...	79	8	
	Sandwich Islands	21	4	
African group	Dahomey	3	1	= 24·9
	African slaves ...	269	74	
	Zulus	49	6	
	Bushmen	29	6	
Asian group.	Hindoos (South India)	71	10	= 11·6
	Hindoos (North India)	152	9	
	Chinese...	27	10	
Total ...	... ...	1124	174	= 15·5

Thus in the skulls of the different races examined the amount of caries varied from 4 to 24·9 per cent., averaging 15·5 per cent. This, it must be remembered, was an examination of weathered skulls. It is unfortunate that no exact statements appear to be made as to the number of missing teeth in these skulls, though probably Mr. Mummery rejected skulls in which many teeth had disappeared. On this point it is noteworthy that the late Sir Benjamin Ward Richardson, in a paper read before the Odontological Association, stated that although he had spent a week among the famous collection of skulls at Hythe, he had failed to discover evidence of dental caries. In the discussion on Sir B. W. Richardson's paper it was, however, stated that other observers (dentists) had discovered a number of instances of caries in the same skulls. We ought, therefore, to add an unknown proportion to the percentages shown in Table III. It would be interesting to know what percentage of caries would be found in a collection of modern English skulls. Making all due allowance for the above considerations it appears probable that caries is at the present time more common in civilised than in uncivilised countries.

We may consult the same authority on the historical aspect of the same problem. Mr. Mummery tabulated the state of the teeth in every skull in the Hunterian Museum and examined several other large collections. He rejected those of doubtful authenticity or in whom "too many teeth" had fallen out.

It is somewhat remarkable that in these ancient skulls there should have been on an average more caries than is seen in the native American, Australasian, or Asian races and about the same amount as in the native African races. Ancient civilisation was accompanied in some instances by as much caries as modern civilisation, as shown by the fact that in 23 Roman skulls examined in York 18 exhibited caries, though the average proportion among Romans was smaller than this. Instances might be multiplied but the above will suffice to indicate that although caries has apparently increased in modern times it was common among the ancients, even among those who lived a most primitive prehistoric life. Mr. Mummery's facts appear to indicate also that the common statement as to the contraction in size of the civilised modern jaw may need further verification. In the round Wiltshire barrows he found one instance of irregularity of teeth from a contracted arch. In the Roman

TABLE IV.—*Historical Incidence of Caries.*

Source.	Number of skulls examined.	Number of cases in which caries was found.	—
			Per cent.
Tumuli in Wiltshire. (a) long barrows from earliest dolichocephalic race—probably cannibal, pre-Celtic ...	68	2	= 2·9
Tumuli in Wiltshire. (b) round barrows from brachycephalic race.	32	7	=21·8
Yorkshire barrows, chiefly of same race as (a)	64	24	=37·5
British collections of Roman skulls in nine museums, &c.	143	41	=28·6
Egyptian mummies	36	12	=33·3
Anglo-Saxon	76	12	=15·8
Totals	419	98	23·6

skulls were three instances of contracted arch and irregularity in incisors and canines and eight cases in which two or more of the third molars were not erupted in middle life. One ancient Egyptian skull also showed irregularity in the upper jaw. Among the 76 Anglo-Saxon skulls was one case of irregularity of jaw with protrusion of teeth.

Up to this point we are able to state that dental caries is a very common disease and that it is probably more common in civilised than in uncivilised communities. It is a cause of inefficiency in our army and a cause of much disease in civil life. This point need not be expanded, but there are strong reasons for believing that septic decaying teeth lower the general health and favour not only throat and stomachic diseases but also open a way into the lymphatic and general circulation for injurious micro-organisms and toxic products. It is, then, a matter of national importance that the causes of caries should be recognised and preventive measures against it based on a sound knowledge of causation. It appears to be generally accepted that caries is due to dissolution of the mineral matter of enamel and dentine by acid secretions in the mouth formed by the decomposition of retained particles of food and to the attacks of various peptonising micro-organisms on the decalcified structures. This does not, however, exhaust the causation of the disease. The micro-organisms are frequently, if not always, present in all mouths; acidity of the secretions of the mouth is not uncommon and yet dental caries is unequally distributed and does not attack some persons at all. No sufficient investigation appears to have been made of the exact relationship between acidity of secretions and the occurrence of caries. It is possible that the occurrence of acidity may be confined to the teeth attacked by caries. If so, one ought to be able to obtain evidence of this, and the unequal distribution of caries in different teeth ought to be capable of more satisfactory explanation than it has hitherto received. Whatever the exact agent producing caries there can be no doubt of the importance of the use of the tooth-brush and of dentifrices in its prevention, and the main object of oral hygiene is to insure their use at least twice daily. Accepting the view that caries is caused by decomposition of food retained in the mouth, there are many favouring conditions of life which still need investigation.

It is unnecessary before the present audience to discuss the influence on the teeth of diet, of modern conditions of life, of civilisation, of town *versus* country life, of sedentary *versus* out-door occupations, of social position, of habits of life, and of heredity, and yet on each of these points important problems are presented to which at present no authoritative answer is forthcoming. Those who regard the main problems of medicine, and of the dental branch of it, as already solved, are strangely unfamiliar with the facts. Thus is the widespread impression well founded that sugar and starchy foods are injurious to the teeth? They are such essential parts of our food that one hesitates to condemn them without further evidence. Even if acid fermentation favours caries the remedy would appear to lie rather in the direction of washing the mouth after meals and forbidding sweetmeats between meals than in restricting the total amount of these foods. In this connexion it would be

interesting to know whether dental caries is more common in this country than in Germany and France, where water and tumblers are placed on the table with coffee or chocolate as a matter of course and thus the mouth is cleansed after the meal of clinging acid-forming débris.

There is a common impression that the supposed increase of caries may be due to the substitution of fine roller-ground flour for the old stone-milled article and generally to the substitution of foods requiring less mastication for those giving better exercise to the teeth and the jaws. The evidence on which this impression is based is, so far as I can judge, unsatisfactory. It ought not to be impracticable to arrange for comparative observations of the members of different communities living on different foods, choosing those who, as regards age, social position, and other conditions of life, are homogeneous but in whom dietaries form the chief difference. This has not hitherto been done on any satisfactory scale. Dentists frequently recommend their patients to prefer brown bread. It has been shown, however, that the excess of nitrogenous matter in brown bread and its richness in fat do not necessarily indicate greater nutritiveness, as these are present in a condition in which only a portion is absorbable from the alimentary canal into the circulation.

One very important investigation is within the reach of every dentist and if systematically pursued on definite lines and the results of similar observations on a large scale carefully tabulated for a few years would possess a very high value. As you are aware, the practice of artificial feeding of infants has greatly increased. It has lowered the vitality and increased the death-rate of infants. Does it leave any ill-effects on infants who survive infancy? No better test of this could be found than the condition of their teeth. Are they carious in a higher proportion than those of naturally-fed infants? In a few years this problem might be settled by statistics carefully compiled on a scientific basis.

The influence of sedentary and urban life appears to be considerable, though here, again, we must at present be content to assert what is highly probable. I am unaware of any exact comparative records. There is, however, reason to believe that caries is less common among country than town labourers. It is stated to be more common among domesticated than among wild animals, but on what limited data this important statement has been made! It is fairly common in the horse, though its dietary has not been improved so far as the grinding of its corn is concerned; and the sperm-whale, whose manner of life remains unchanged, has been known to suffer both from dental caries and from gum-boils.

The above facts suggest doubts on many points and indicate the necessity for further systematic investigation on a large scale, investigation in which every dentist might give valuable assistance with comparatively little trouble. I have solved no problems but have suggested a number which require investigation, agreeing with the statement of Epicharmus, a Pythagorean philosopher in the fifth century B.C., that "the very nerves and sinews of knowledge consist in believing nothing rashly."

Although the field for investigation is still extensive enough is known to enable most important immediate preventive measures to be taken. These may be summarised under the following heads: 1. The teaching of hygiene should be made compulsory in the senior classes of all elementary schools and the hygiene of the mouth should form an important part of the subject. 2. The enforcement of daily cleansing of teeth should be organised in all residential schools, especially those for which boards of guardians and education authorities are responsible. 3. The medical profession can give a great impetus to dental reform by examining the teeth of all children attended by them and by inculcating on parents the necessity for regular cleansing and for early attention to caries. They see the children from birth, while dentists commonly only examine them when the mischief is already extensive. 4. Every industrial and other school authority should employ a dentist to remove or to "stop" carious teeth of children, to remedy dental irregularities, and to organise methods of dental hygiene. The expense of this measure will be more than recouped by the improved health of the children and the national wealth which depends on the national health will be enhanced by the general adoption of this measure.

Brighton.

A CASE OF LARYNGEAL DIPHTHERIA; TRACHEOTOMY; DEATH SIX WEEKS LATER FROM PRESSURE OF AN ABSCESS SURROUNDING THE TRACHEA.

BY WILLIAM MAIR, M.A., M.B., CH.B., B.SC. EDIN., D.P.H. CANTAB.,

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THE following case is, I think, worthy of record, as it is of considerable practical interest and I do not know of anything similar in the literature of the subject.

The patient, a boy, aged nine months, was admitted on the afternoon of Oct. 16th, 1902, to the City Fever Hospital, Edinburgh, suffering from laryngitis. There was great inspiratory difficulty with marked indrawing of the lower intercostal spaces and epigastrium, dusky colour, feeble pulse, and "croupy" cough. The voice was very hoarse but not completely absent. The child had just recovered from an attack of whooping-cough and was stated to have been "croupy" since the 12th. At 7.45 P.M., after an unsuccessful attempt at intubation, tracheotomy was performed under chloroform, a silver tube of the ordinary pattern being used. The breathing, colour, and pulse improved after the operation and at 11 P.M. 9000 units of diphtheria antitoxin were injected. The child had a good night and his condition on the following day had improved very much. The improvement continued and on the 19th the tube was taken out but had to be replaced after two hours. From this date frequent attempts were made to get rid of the tube but it always had to be replaced as the child became rapidly cyanosed and on at least two occasions stopped breathing, recourse being had to artificial respiration. The general condition of the child continued to improve; he took nourishment well, looked bright and lively, and played with toys. There had been a considerable amount of inflammation around the wound and for some days a slight mucopurulent discharge had been noticed coming from the wound outside the tube. From Nov. 5th to 11th no attempt was made to remove the tube. The local inflammation had subsided and the child's general condition was good. On the 11th the tube appeared to be causing irritation; there were again some respiratory difficulty and a good deal of cough and the child was not looking so well. The tube was removed and replaced by one of Parker's pattern which seemed to suit better. On the next day the child was no better and a rubber tube was tried. This was left in till the next morning when the child became suddenly cyanosed and stopped breathing. A silver tube of the original pattern was substituted and artificial respiration was performed. On the same afternoon (the 13th), it being thought probable that some ulceration of the trachea had occurred and that the obstruction was due to granulations, a silver tube half an inch longer and of slightly smaller calibre was substituted. On introducing this tube a distinct sense of resistance was felt. With the longer tube the child breathed quite freely and began to pick up strength again. The tube was removed every second day but the patient could not breathe long without it. On the 19th a rubber tube was substituted which did well for six hours but had then to be replaced by the silver one. The child continued fairly well until the 24th when it was noticed that the breathing was again becoming laboured. On the 25th different patterns of tubes were tried without success. In the evening the breathing became very bad and it was decided as a last resort to attempt to open the trachea lower down. Under chloroform an incision was made lower in the neck, an inner tracheotomy tube was introduced through the upper wound as a guide, and the trachea was opened about half an inch lower. A Parker's tube was inserted. About an hour later the breathing suddenly became very bad and the long silver tube was again inserted. It passed easily, but, as was discovered later, not through the lower opening in the trachea but through the original one. The breathing then became much easier. On the 26th the patient had a quieter day, though there was one attack of spasmodic dyspnœa. On the 27th the child was again breathing very badly; the wound was opened up again and an unsuccessful attempt was made to reach the trachea lower

down. When spasmodic attacks of dyspnœa occurred a little chloroform was given. On the 28th the patient's colour was very bad and a distinct dyspnœic convulsion occurred. Oxygen inhalations were begun which relieved the breathing somewhat. The patient slept fairly well. On the 29th his colour was still bad in spite of the oxygen and the pulse began to fail. Death occurred at 6.45 P.M.

At the post-mortem examination the larynx and the trachea were found to be almost normal. There was only a slight abrasion of the epithelium—no granulations to cause obstruction. On either side of the trachea there was an abscess cavity, smooth-walled, and holding in all about an ounce of yellow pus. No connexion between the two parts of the cavity could be demonstrated; that on the right side extended for about one and a half inches down the side of the trachea while that on the left was about an inch in length. Death was obviously due to the pressure of this abscess on the trachea. There had been nothing during life to make one suspect the presence of an abscess. The temperature only rose considerably on Nov. 26th. It was normal on the 28th and 29th. The presence of the abscess explains the relief given by the introduction of a longer tube and the inability of the patient to do without the tube. The secondary operation on the 25th probably gave relief by relaxing tension to some extent. By a most unfortunate chance the abscess was not discovered at that operation or on the 27th when the wound was again opened up. If there had been any reason to suspect the existence of the abscess it would have been a comparatively easy matter to open it and the child's life might have been saved. In conclusion, I wish to express my thanks to Dr. Claude B. Ker for his kind permission to record the case.

East Pilton, Leith.

THE USES OF SODIUM SALICYLATE IN THE TREATMENT OF MALARIAL FEVER.

BY A. D. E. KENNARD, M.R.C.S. ENG., L.R.C.P. LOND.

I SHOULD like to draw attention to the value of sodium salicylate in the treatment of malarial fever. It reduces the temperature as quickly as quinine, if not more quickly, but I have found it of the greatest value in relieving the acute pain in the limbs which patients suffer from in malarial fever. It acts very quickly and after a few doses all the pain passes away. I have used it successfully in cases in which quinine has not afforded the slightest relief. I should say that sodium salicylate would be of the greatest use in those cases in which quinine cannot be tolerated, as it certainly controls the pyrexia. I find that this drug is very little used in India for malarial fever, in fact, the practitioners there pin their faith to quinine, and this fact and the success which I have had with sodium salicylate have induced me to bring the subject before the profession. Appended are three cases in which I used sodium salicylate in conjunction with quinine sulphate. As all my cases occurred on board ship I had not the necessary apparatus to confirm my diagnosis by an examination of the blood.

CASE 1.—The patient, aged 32 years, had lived for four years on the West Coast of Africa, where he had had several attacks of malarial fever. He was a hard drinker but had never suffered from rheumatic fever or gout. He was taken ill one morning on awaking with a shivering fit and pain in the ankles. I saw him in the evening; he then had a temperature of 103·8° F. and complained of severe pain in the ankle-joints which were red, swollen, and very tender to the touch; there was no synovitis. The circulatory, respiratory, and nervous systems were normal and there was no tonsillitis. The patient was placed on a farinaceous diet and 20 grains of sodium salicylate were given every four hours. On the following morning the temperature was 100° and the pain in the ankles was not nearly so severe, all the inflammation having disappeared. The patient had sweated profusely all through the night. The medicine was reduced to ten grains every four hours. On the same evening the temperature was 99° and all the pain had disappeared. On the following morning the temperature was normal and there was no pain. The medicine was changed to 10 grains of sulphate of quinine morning and evening. The patient was placed on ordinary diet and he made an uninterrupted recovery.

CASE 2.—The patient, aged 40 years, a lascar, was a native of Assam. He had had several attacks of malarial fever. He was taken ill with a rigor in the morning and when I saw him soon afterwards he had a temperature of 102° F. and was suffering from pains in the thighs and the legs. The tongue was furred, but the bowels were normal. The circulatory, respiratory, and nervous systems were normal. The patient was placed on a light diet and ten grains of sulphate of quinine morning and evening were ordered. On the following morning the temperature was 100° and the pain in the limbs was still severe. The quinine was continued, the thighs and the legs were ordered to be massaged, and a liniment of belladonna was applied. In the evening the patient was in the same condition and as he could not sleep an injection of a quarter of a grain of hydrochlorate of morphia was given. On the following morning the temperature was 99° but the pain in the thighs and the legs was still severe. The quinine was continued as well as the massage. I was sent for in the evening as the patient was raving with the pain in the thighs and legs. When I saw him the temperature was 99° and the pulse was 110. Fifteen grains of sodium salicylate every four hours were ordered. On the following morning the temperature was normal and the pain had entirely gone and on the next day the patient was up and doing light work.

CASE 3.—The patient, aged 40 years, had lived in India for 15 years and had had several bad attacks of malaria but had not had an attack for the last five years. After being on board for three days he had an attack of malarial fever which lasted for four days. He treated himself with quinine and phenacetin. The temperature went up at various times during the attack to 102·8° F. and he had rather severe pain in the thighs and the legs. The patient, after being free from fever for five days, had another sharp attack during which the temperature went up to 103°. I saw him on the following morning. He was taking ten grains of sulphate of quinine twice daily and when the temperature went above 101° ten grains of phenacetin. The pain in the limbs had been severe but was improving. On the following day the temperature was 99° and the pain in the limbs was less, but towards evening the temperature had again risen to 101° and the pain in the limbs was much worse. I advised him to try sodium salicylate and he took one dose of ten grains, after which the pain disappeared and he had a good night's rest; in the morning the temperature was normal and the pain had entirely gone. Five days after this the patient had another attack with pain in the limbs and a temperature of 102°. He took ten grains of sulphate of quinine and then ten grains of sodium salicylate four times a day. On the following morning the pain had left him and the temperature was 100°. The pyrexia remained for a couple of days longer, but the temperature was never above 100° and there was no more pain. The patient, as well as myself, attributed the improvement to the use of sodium salicylate.

Hampton Wick.

SMALL-POX IN THE FŒTUS.

BY ALLAN WARNER, M.D. DURH., D.P.H. LOND.,
RESIDENT MEDICAL OFFICER OF THE ISOLATION HOSPITAL AND ASSISTANT MEDICAL OFFICER OF HEALTH OF LEICESTER.

THE following cases are perhaps of sufficient rarity to be worth putting on record.

CASE 1.—The patient, aged 35 years, commenced to be ill on Jan. 8th with shivering, backache, headache, and vomiting. An eruption appeared on the 11th and she was admitted to the small-pox hospital, when she was found to have a characteristic small-pox eruption. The temperature was 103·6° F. The patient had been vaccinated in infancy and four faint marks in area equivalent to five-eighths of a square inch were visible. She was four months pregnant. The eruption rapidly developed and threatened to be confluent. Many of the papules, however, desiccated without becoming pustular and those that maturated remained of a small size. She progressed so satisfactorily that on the 23rd (the thirteenth day of the eruption) all the crusts had come off the face and on Feb. 3rd she was entirely free from scabs. On the 12th she was about to be discharged from the hospital when a small superficial abscess was observed in her right breast. This was anæsthetised with ethyl chloride, an incision was made, and pus was evacuated. On the evening of

the 14th she complained of paroxysmal abdominal pain as though she were about to miscarry. On the morning of the 15th the miscarriage was complete, consisting of two female fœtuses, about five months old, and a single placenta. No movements were observed at birth. Each fœtus measured eight and a half inches in length; from their appearance and from the fact that they had not been felt to move for two or three days it seemed probable that they had died in utero a few days previously. Both of the fœtuses were covered by a well-marked eruption, distributed chiefly on the back, the head, and the neck, less on the abdomen and the limbs, and there were two spots on the sole of one foot. The eruption consisted of yellow circular patches with a central depression, the size of the majority of the patches being equal to the thirty-second part of a square inch.

It is generally stated that in about 50 per cent. of cases of pregnancy complicated by variola abortion takes place. But it by no means necessarily follows that there are any signs of small-pox in the fœtus. Indeed, MacCombie[1] states that "the liability of the fœtus to small-pox is not great, but it appears to increase directly with its age. It is, however, exceptional to find that the children born of variolous mothers, even during convalescence, have had small-pox in utero, or that they are suffering from it at the time of birth. There is some reason to believe that they are more or less protected against small-pox by the mother's attack." The above case illustrates the fact that the manifestation of small-pox in the fœtus does not always occur at the same time as it does in the mother, for the mother had been convalescent and apparently free from infection for nearly two weeks, whilst from the eruption I should estimate that it was about the twelfth day of the disease in the fœtus.

A point of considerable interest in this case is that had the patient been discharged as free from infection on Feb. 12th her subsequent miscarriage might have been a source of infection to anyone attending her. This would therefore tend to show that special caution should be exercised in discharging pregnant women from a small-pox hospital.

There are several cases recorded which indicate that an attack of small-pox in a pregnant woman may be largely modified by her offspring. Curschmann[2] speaks of a woman who was seized with shivering, fever, headache, and pain in the back, and as small-pox was epidemic at the time she seemed to be passing through the initial stage. On the fourth day defervescence occurred, no rash could be detected, and by the tenth day she felt perfectly well. Subsequently she gave birth to an infant who was covered with an early eruption of small-pox. Case 2 is possibly of a somewhat similar nature. A family consisting of father and mother and eight children were all admitted to the small-pox hospital and the notes of these cases may be summarised as follows:—

Date of admission.	Patient.	Years of age.	Condition as to vaccination.	Type of disease.
Jan. 5th ...	Daughter.	18	Unvaccinated.	Mild discrete.
,, 11th ...	,,	10	,,	,, ,,
,, 11th ...	,,	14	,,	Coherent.
,, 12th ...	Son.	20	,,	,,
,, 12th ...	Daughter.	5	,,	,,
,, 13th ...	Father.	43	Vaccinated in infancy, four faint marks, equal to three-eighths of a square inch.	Discrete.
,, 13th ...	Daughter.	15	Unvaccinated.	,,
,, 13th ...	,,	7	,,	Coherent.
,, 14th ...	Son.	1½	Vaccinated on Jan. 13th; eruption on Jan. 16th.	Very mild discrete.
,, 14th ...	Mother.	39	Vaccinated in infancy; four faint marks, equal to one-half of a square inch.	No rash.

CASE 2.—The patient, aged 39 years, commenced to be ill on Jan. 12th with shivering and headache and on the 13th there were retching, backache, aching limbs, and fever. On the 14th she was admitted to the small-pox hospital and was there isolated. There were four faint vaccination marks of infancy, equal to half a square inch. The patient was suffering from dizziness and shivering and her temperature was 100° F. She was three months pregnant and threatening to miscarry. On the 15th miscarriage was complete, consisting of a small fœtus, between two and three months old, and placenta. There was no eruption on the fœtus. On the same day the patient was vaccinated in three places but this was not successful; she was again unsuccessfully vaccinated on the 19th in two places.

Of course, this case is not completely comparable to the one recorded by Curschmann, as there was no eruption seen on the fœtus. But considering, first, the difficulty of making any definite statement as to the existence of small-pox in a fœtus between two and three months old; secondly, that the patient had been successfully vaccinated in infancy and therefore had no natural immunity to vaccinia; thirdly, that her primary vaccination could not have protected her for 39 years; and fourthly, that she had only the initial symptoms of small-pox, while every other individual in the house had the disease, it seems not unreasonable to suggest that her immunity to vaccinia was created by an abortive attack of small-pox, modified by the fœtus.

Leicester.

[1] Clifford Allbutt's System of Medicine, vol. ii.
[2] Charles Hilton Fagge: Principles and Practice of Medicine.

RETENTION OF A BULLET IN THE THIGH FOR TWO AND A HALF YEARS.

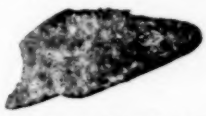
BY SEYMOUR F. GIBBS, M.B. LOND., M.R.C.S. ENG., L.R.C.P. LOND.,
LATE CIVIL SURGEON, SOUTH AFRICAN FIELD FORCE.

A NON-COMMISSIONED officer was admitted into No. 1 General Hospital, Wynberg, on August 16th, 1902, under my care, giving the following history. On Feb. 18th, 1900, at Paardeberg, while kneeling behind his maxim he was shot in the right thigh, being at a distance of about 570 yards from the trenches. The wound was dressed and soon healed. He had had two operations since, being told after one that a chip of bone had been removed. A skiagram was taken which revealed the presence and position of the bullet. He now complained of a hard lump in his thigh, weakness in the right leg, difficulty in walking, and at times a dull pain over the swelling. The presence of this foreign body in his leg was a constant source of worry to him and he was very anxious to have it removed. On admission to hospital his condition was as follows. On the inner and posterior surface of the middle third of the right thigh could be felt a hard, well-defined, deep-seated swelling two and a half inches long by one and a half inches broad, its long axis being parallel with that of the femur and in close proximity to it. The swelling was not tender and the skin over it was freely moveable and not reddened. Below and in front of the tumour was a linear cicatrix two inches long, the result of a previous operation and at about the centre of this line was visible a small slit-like cicatrix marking the aperture of entry of the bullet. The right leg and foot were swollen and pitted on pressure. There was some loss of power of adducting the thigh and he limped when walking.

The patient was carefully prepared beforehand for the operation and every effort was made to render the skin over and for some distance around the tumour thoroughly aseptic. Chloroform was administered on August 19th, 1902, and during the operation all the usual precautions were taken to prevent infection of the wound with micro-organisms. An incision four inches long was required and the finger frequently introduced into the opening made by the incision formed the best probe. The bullet was encapsuled in a very dense and thick-walled covering of fibrous tissue and lay within the adductor longus muscle, behind and in close proximity to the femoral vessels in Hunter's canal. A difficulty experienced was to fix the fibrous capsule so that the scalpel did not slip when incising it. This covering was three-quarters of an inch thick and its walls were extremely hard, being almost cartilaginous in consistence; consequently great care had to be exercised while making the opening through it large enough to extract the bullet, which was done by means of a pair of bullet forceps and without employing force. The wound healed by first intention. Four

weeks later the swelling and pitting of the leg had disappeared. He had no more pain, his leg was much stronger, and the limp had nearly gone.

Most of the following particulars are well shown in the illustration which represents the actual size of the bullet.



It was nickel-coated, flattened and spirally twisted, and grooved on its long axis. At its base and lower half of one side the leaden core was exposed as a sharp jagged edge such as one finds in a ricochet. The nickel was blackened and had a brownish crystalline substance deposited upon its lower part. It was not a soft-nosed bullet—that is, the nickel coating had not been removed from the tip. I consider the case interesting and so worth recording for the following reasons: (1) that the bullet, though encysted, still continued to irritate; (2) that it caused obstruction to the femoral vein; and (3) that this obstruction was due to the excessive quantity of inflammatory fibrous tissue formed by the foreign body and not to a change in position of the bullet by muscular action owing to the fact that it was encysted.

Hampstead, N.W.

ARSENICAL IDIOSYNCRASY.

BY JOHN PHILLIPS, M.B., L.R.C.P. EDIN.,
SENIOR HONORARY PHYSICIAN, ROYAL PORTSMOUTH HOSPITAL.

THE subject of the peculiar susceptibility of certain persons to certain drugs is one with which all medical men are well acquainted and my only apology for bringing the following case of arsenical idiosyncrasy before the notice of the profession is because of the smallness of the amount taken and the excessive severity of the consequent symptoms.

The patient, a married woman, had been under my care for abortion associated with very considerable hæmorrhage which had left her in a weak and anæmic condition and during her convalescence I prescribed as a tonic and hæmatinic the capsular preparation of a well-known and reliable firm, the constituents of each capsule being expressed by the following prescription: pil. Blaud, 1; extract. nucis vomicæ, gr. ¼; sodii arsen. anhyd., gr. $\frac{1}{30}$. She was directed to take one of these three times a day after meals. I saw her in the forenoon of Nov. 14th, 1902. She had then taken one capsule and had no unfavourable symptoms. A second capsule was taken after her mid-day meal and during that afternoon she complained of a feeling of nausea. A third was given after her evening meal and at about 11.30 P.M. she was seized with most violent abdominal pains, vomiting, and purging. Two hours later I was sent for and found her in an alarmingly collapsed condition with all the symptoms of acute irritant poisoning, evidently arsenical. In addition to the vomiting and purging, she complained of thirst with a sense of constriction and burning of the throat together with acute epigastric pain and tenderness. Her features were pinched and pallid. Her skin was cold and clammy and there was tremor of the limbs. The respiration was feeble and associated with frequent hiccough and the radial pulse was quite imperceptible. The excessive collapse was the most alarming symptom and as there had already been very free emesis I did not consider it necessary, or in fact safe, to give any further emetic, but proceeded to treat the collapse with strychnine hypodermically, brandy internally, hot bottles externally, and poultices to the abdomen to relieve the pain. Under this treatment the radial pulse gradually improved, becoming fairly full but rapid (128). Subsequently a saline infusion was given per rectum. Castor oil by the mouth and a hypodermic injection of morphia to arrest the retching and pain, followed at a later period by frequent doses of dialysed iron, were given and she ultimately made a good recovery.

The interesting point in the case is that the total amount of arsenate of sodium was *less than one-tenth of a grain* and this amount had been given in three separate doses with an interval of some hours between each dose, yet this minute quantity was sufficient to cause such alarming symptoms. There was nothing in the diet that could possibly have caused these symptoms. Moreover only 12 capsules had been prescribed, of which nine remained in the box, and the opinion that it was a case of arsenical idiosyncrasy was proved by the fact that on inquiry I found that some two and a half years previously when under the care of another medical man she had been attacked by somewhat similar symptoms but much less severe after taking one or two doses of a mixture which had contained arsenic probably in the form of liquor arsenicalis.

Southsea.

A Mirror OF HOSPITAL PRACTICE, BRITISH AND FOREIGN.

Nulla autem est alia pro certo noscendi via, nisi quamplurimas et morborum et dissectionum historias, tum aliorum tum proprias collectas habere, et inter se comparare.—MORGAGNI *De Sed. et Caus. Morb.*, lib. iv., Proœmium.

FRENCH HOSPITAL AND DISPENSARY, SHAFTESBURY AVENUE.

TWO CASES OF DISEASE OF THE LIVER.

(Under the care of Dr. H. DARDENNE, Mr. EDMUND OWEN, and Dr. G. C. LOUIS VINTRAS.)

FOR the notes of the cases we are indebted to Mr. Jehan M. Barlet, resident medical officer.

CASE 1. *Tropical abscess.*—A Frenchman, aged 36 years, was admitted into the French Hospital and Dispensary on Feb. 7th, 1903, under the care of Dr. Dardenne and Mr. Owen, complaining of dysentery and pain in the back over the area of the liver. He had just arrived from South Africa, having been exploring in Rhodesia and the region of the Zambesi for the last 15 years. With regard to his personal history, he had had many attacks of malaria, and six months ago had an attack of dysentery which had not completely cleared up on his admission into the hospital. His condition on admission was as follows. He was very exhausted, with a temperature of 102° F. and a pulse of 132. There was pain over the region of the liver posteriorly and also at the tip of the right shoulder. He had occasional attacks of vomiting and headache. His tongue was furred. There was a distinct bulging posteriorly over the liver region and there was also some œdema. The irregularity of the temperature suggested septicity and the diagnosis of tropical abscess of the liver having been made it was decided to operate. On the 10th an incision was made in the posterior axillary line, along the course of the eighth rib, and a piece of this being removed the abscess was immediately reached. About 50 ounces of pus were let out. The cavity was irrigated with a 1 in 4000 solution of biniodide of mercury and a large drainage-tube was inserted. The pus was examined microscopically and found to consist of broken-down pus cells mixed with liver cells and fat globules, but no amœbæ coli or pyogenic cocci were found. As is usual in cases of tropical abscess of the liver no amœbæ coli were discoverable in the pus first let out, but on examination of that which was discharged three days after the operation they were found in large numbers. The cavity quickly healed up and the patient was discharged cured on March 21st, having gained 12 pounds in weight.

CASE 2. *Hydatid cyst on the under aspect of the liver; abdominal section.*—A man, aged 45 years, was admitted into the French Hospital and Dispensary on Nov. 19th, 1902, under the care of Dr. Louis Vintras and Mr. Owen, complaining of pain over the region of the liver. With regard to his personal history he said that he had always been healthy with the exception of having had malaria and dysentery in the tropics. He had never had syphilis and he did not drink, though he was a wine merchant by trade. He had noticed the swelling near the pit of the stomach for the past six months and of late it had been gradually increasing in size. He had been steadily losing flesh and the swelling had become increasingly painful. He had been living in Puerto Rico for four years and had been in England four months before entering the hospital. On examination a smooth, rounded swelling was discovered occupying the right lobe of the liver; it was painful on palpation and it gave a distinct thrill, which, however, disappeared after two or three days, the swelling becoming more tense. The diagnosis

of hydatid cyst of the liver was made and it was decided to operate. On the 21st Mr. Owen made an incision in the right semilunar line, disclosing a smooth rounded tumour of the right lobe of the liver with a glistening covering of peritoneum. A large trocar was introduced but without result; an incision was made into the mass, after packing it round with sterilised gauze so as to shut off the peritoneal cavity. Immediately a shoal of daughter cysts poured out to the number of 240, ranging in size from that of a small pea to that of a plum. There was but a very small amount of fluid. The cyst wall was stitched up to the abdominal wall and the cavity was washed out with a 1 in 4000 solution of biniodide of mercury, a large drainage-tube being inserted. The cavity gradually closed up and the patient was sent to the French Convalescent Home at Brighton on March 14th, 1903, the wound having completely closed.

GLASGOW ROYAL INFIRMARY.

CASES OF GASTRIC AND DUODENAL ULCER, WITH SPECIAL REFERENCE TO THE AREA OF LIVER DULNESS.

(Under the care of Dr. J. LINDSAY STEVEN and Dr. J. W. ALLAN).

FOR the notes of the cases we are indebted to Dr. W. G. Rodger, late house physician.

CASE 1.—The patient, a woman, aged 19 years, was admitted to the Glasgow Royal Infirmary on March 12th, 1903, complaining of copious vomiting, at intervals of a few days, during the month preceding admission. The vomiting always occurred at night and was accompanied by slight nausea but no pain. Although the appetite remained good during this time loss of flesh and colour were progressive. A history of "stomach trouble," characterised by attacks of sickness and vomiting during the past ten years, was obtained. There was no history of hæmatemesis or melæna. On admission the patient was pale and extremely emaciated. The pulse was 90 per minute, soft, and irregular in force and rhythm. The abdomen was retracted. Palpation revealed marked splashing in the stomach four hours after taking food but no tenderness. Peristalsis was absent. The area of gastric tympanicity was only slightly enlarged. The liver dulness was much reduced as shown by measurements. Examination of the heart revealed signs of mitral stenosis. Absolute rest in bed was enforced and small quantities of milk were given every two hours with bismuth subnitrate 15 grains thrice daily. On the 14th and 17th vomiting occurred. The vomitus consisted of one and a half pints of frothy brownish fluid with beery odour. Chemical examination revealed an excess of free hydrochloric acid and an absence of lactic acids. Under the microscope actively dividing yeast cells and many sarcinæ were found. At 8 P.M. on the 18th the patient felt faint but had no pain. The pulse rose to 140 and was easily compressed. The faintness was transitory and the patient rallied in 15 minutes. Between 7 A.M. and 10 A.M. on the 19th three large hæmorrhagic motions were passed. The blood was dark in colour. The pulse, after the first motion, was 136 per minute and running in type, the temperature was 97·6° F., and the respirations were 22 per minute. The patient was blanched in appearance. Restlessness became marked and she complained greatly of thirst. Excepting a fulness in the region of the sigmoid flexure examination of the abdomen was negative. At 11 A.M. operation was proposed but the patient's friends declined. Morphine, adrenalin, and ergotin were resorted to for 24 hours and steady improvement resulted. During the next 15 days progress was, on the whole, favourable but occasional slight melæna was noted. On April 3rd, at 7 P.M., the patient vomited 15 ounces of brownish material without a trace of blood. At 11 P.M. severe epigastric pain going through to the back was complained of. The pulse was now 130, small and irregular, the temperature was 97°, and the respirations were 24 per minute. On examination of the abdomen respiratory movement appeared to be normal. The anterior abdominal wall was rigid but there was no distension. Palpation elicited localised epigastric tenderness. The liver dulness was by this time reduced to a narrow strip of not more than a finger's breadth (see Table I.). The bowels did not move. At 1.30 A.M. on the 4th coma supervened. At 2 A.M. a leucocyte count showed 5250 per cubic millimetre. The temperature had then risen to 100°. Examination of the chest was negative. At 9 A.M. the leucocyte estimation was 25,600 per cubic millimetre. During the day slight epigastric distension was noted. The temperature remained between 100° and 101°. Signs of circulatory depression became marked and death occurred at 4.30 P.M.

TABLE I.—*Area of Liver Dulness in Case 1 (measurements taken three hours after food).*

Date.	Middle line.	Mid-clavicular line.	Anterior axillary line.	Posterior axillary line.
	Inches.	Inches.	Inches.	Inches.
12/3/03	1	1½	1½	1½
17/3/03	½	2	3	2½
18/3/03	½	1	1½	1
Hæmorrhage.				
21/3/03	½	½	½	½
28/3/03	1	2	1	1
1/4/03	1	2	1½	2
3/4/03 (12 hours after food)	½	½	2	½
Collapse and death.				

Necropsy.—A post-mortem examination was made on April 6th. On examination of the abdomen no sign of peritonitis was found. The stomach showed hour-glass contracture with slight dilatation. The pylorus was so narrow that it only admitted the tip of the little finger. There was no sign of recent or old ulcer of the stomach and the contracture was regarded as congenital in origin. On the posterior wall of the duodenum there was a large punched-out ulcer penetrating the pancreas of about the size of a shilling. No patent vessel was found. The colon appeared to be normal in size and position.

CASE 2.—The patient, a female, aged 18 years, was admitted to the Glasgow Royal Infirmary on Nov. 24th, 1902, complaining of gastric pain, vomiting, and headache of three weeks' duration. The pain was localised, stabbing in character, but did not penetrate to the back. It had been continuous for three weeks and was always aggravated by food, even strict milk diet. Vomiting occurred about one hour after food and gave little or no relief. There was no history of hæmorrhage. On admission the patient was emaciated and slightly anæmic. Examination of the abdomen revealed distinct tenderness in a small area midway between the ensiform cartilage and the umbilicus. There was no sign of dilatation of the stomach. The vertical diameter of liver dulness measured two and a half inches in the mid-clavicular and three inches in the mid-axillary line. The patient was kept in bed and small quantities of milk were administered frequently. At 8 P.M. on the 27th the patient complained of an acute epigastric pain going through to her back. The onset was sudden and a few minutes later she vomited three ounces of curdled milk with several bright red blood-clots in it. The abdomen on inspection appeared to be normal. Sharp epigastric tenderness was elicited and there was slight tenderness in the right hypochondriac and right lumbar regions. The liver dulness was normal. The temperature was 98° F. and the pulse was 60 per minute, regular and of good tension; the respirations were normal. Under the influence of heat the pain diminished in the course of 40 minutes and the patient had a good night. At 8.30 A.M. on the 28th the epigastric pain again became so severe that the patient was forced to cry out. When seen at 9 A.M. the face was pale and the expression was anxious. On inspection the abdomen appeared to be normal and abdominal respiration was present. Epigastric tenderness was very acute and the anterior abdominal wall was slightly rigid. At this examination the area of liver dulness was found to be almost absent, only a narrow band half an inch in diameter remaining. The temperature had fallen to 96·6°, the pulse was 112 per minute, small, but of fair tension, and the respirations were 28 per minute. Dr. J. Lindsay Steven, after consultation with Dr. W. K. Hunter, requested Mr. J. H. Pringle to see the patient and after further consultation it was determined that as the case was probably one of perforation of the stomach by a gastric ulcer laparotomy should be performed at once.

On opening the abdomen there was no sign of peritonitis. The stomach was normal in size and position and no abnormality was noted in its wall. The colon was distinctly contracted and appeared about one inch in diameter. After operation the patient made good progress for three weeks and then for a few days slight hæmatemesis recurred. At

the end of three weeks she was dismissed well, the area of liver dulness at this time being much diminished. As she did not return to report herself the patient was not again examined

CASE 3.—The patient, a female, aged 25 years, was admitted to the Glasgow Royal Infirmary under the care of Dr. Allan on Feb. 27th, 1903. On the morning of the 26th she had suddenly vomited "half a basinful" of bright red blood. There were no premonitory symptoms except a sense of discomfort in the epigastrium immediately before vomiting. Hæmatemesis recurred the same evening and again next morning. On admission the patient was very pale and presented signs of moderate collapse. The abdomen was slightly rigid but there was no tenderness. The vertical diameter of liver dulness was two and a half inches in the mid-clavicular line. Examination of the heart revealed signs of mitral stenosis. On March 2nd the patient vomited 15 ounces of dark-red blood. On the 3rd collapse became marked and at the same time it was noted that the liver dulness was gradually diminishing. At 3.30 P.M. the area of liver dulness had quite disappeared and it was decided to perform exploratory laparotomy. At the operation nothing abnormal was detected within the abdomen. There was no distension of the stomach or transverse colon and these viscera were in their usual positions. The patient made an uninterrupted recovery. During convalescence the liver dulness gradually returned and at the end of five weeks the lower edge was at the costal margin.

CASE 4.—The patient, a female, aged 23 years, was admitted to the Glasgow Royal Infirmary on Feb. 15th, 1903 She complained of vomiting of four days' duration and loss of appetite and nausea of three weeks' duration. For three days previous to the onset of vomiting diarrhœa, with passage of four or five loose dark motions daily, was present. Three nights before admission severe generalised abdominal pain set in and remained until relieved by morphine next day. The pain was associated with vomiting of greenish mucoid fluid, which persisted until admission. On admission the patient was in a state of collapse. Her colour, however, was good and she appeared to be well nourished. She was vomiting small quantities of bilious fluid. The extremities were very cold and the patient felt extremely exhausted. Her temperature was 98° F., her pulse was 93, small and compressible, and her respirations were 16 per minute. The abdominal wall was relaxed. On palpation of the abdomen general tenderness was elicited and this was slightly more marked in the epigastrium. The liver dulness was greatly reduced (see Table II.). The case was considered one of acute gastro-intestinal catarrh. For five days small quantities of milk were given by the mouth and then, as vomiting still continued, feeding by the mouth was given up and nutrient enemata were resorted to. Steady improvement followed the rectal feeding and on the 27th the patient was allowed up and given light diet. She was discharged well on April 10th.

TABLE II.—*Measurements of Area of Liver Dulness in Case 4.*

Date.	Middle line.	Mid-clavicular line.	Anterior axillary line.	Posterior axillary line.
	Inches.	Inches.	Inches.	Inches.
15/2/03	1	1½	1	—
19/2/03	—	—	¾	—
Rectal feeding.				
24/2/03	½	½	—	—
26/2/03	½	½	—	—
28/2/03	½	½	—	—
2/3/03	½	—	—	—
3/3/03	—	½	—	—
5/3/03	¾	1	1	1
10/3/03	¾	½	¾	¼
21/3/03	—	¾	½	¼
Light diet: allowed up.				
28/3/03	¼	¾	¾	1
1/4/03	¼	¾	1¼	1
4/4/03	1	1¼	1¼	1¼

CASE 5.—The patient, a female, aged 17 years, was admitted to the Glasgow Royal Infirmary on March 12th, 1903. There was a history of gastric pain after food of three months' duration and one severe hæmatemesis at the onset. On admission she presented the usual clinical features of gastric ulcer. During her residence in hospital the area of liver dulness was very small (see Table III.). Recovery was uninterrupted.

TABLE III.—*Measurements of Area of Liver Dulness in Case 5.*

Date.	Middle line.	Mid-clavicular line.	Anterior axillary line.	Posterior axillary line.
	Inches.	Inches.	Inches.	Inches.
12/3/03	¼	½	½	¾
18/3/03	½	¾	¾	1
21/3/03	1	1	1	1
28/3/03	¾	¾	1½	1½
1/4/03	¾	1	1½	1
4/4/03	1½	1¼	2½	2¼

CASE 6.—The patient, a female, aged 23 years, was admitted to the Glasgow Royal Infirmary on Dec. 25th, 1902, complaining of pain after food, vomiting, slight hæmatemesis, and loss of colour of four months' duration. On admission there was slight epigastric tenderness. There were no signs of dilatation of the stomach. The liver dulness in the mid-clavicular line measured fully two inches. On the 26th, although the patient felt quite well, the liver dulness was absent. During the next three weeks the patient gradually improved and the area of liver dulness increased. She was dismissed well on Jan. 23rd, 1903, and on her return from the convalescent home a fortnight later the liver dulness was normal.

Remarks by Dr. RODGER.—In all the cases the area of liver dulness was diminished. In the first three cases it was practically absent, a feature which was associated with certain other signs and symptoms pointing to perforation which, as above shown, had not occurred. In a recent number of THE LANCET[1] the following explanation by Dr. Austin Flint in 1882 of the absence of liver dulness in such cases appears—viz., "that there is a dilatation of the stomach and colon and that they encroach on the hepatic area." Although many of the cases are produced in this way this view will not explain the absence of liver dulness in Cases 1, 2, and 3, where the size and relations of the stomach and colon were little if at all disturbed. No explanation is here offered but the remark that there appears to be a relationship between the area of liver dulness and the presence or absence of food in the stomach. Thus in the cases described the liver dulness was, as a rule, least when the stomach contents were reduced to a minimum—e.g., in rectal feeding—and it gradually increased as a more ample dietary was given (see Cases 3, 4, 5, and 6). That the area of hepatic dulness may vary with the amount of stomach contents is also shown by estimation before and after food, when a difference in the various diameters of one inch or more may be found The presence of a rapid leucocytosis has been regarded by some as an important sign in cases of perforation. In Case 1, although no perforation had occurred, a rapid and marked leucocytosis was noted. With reference to this sign Robson and Moynihan[2] state that "it is not always reliable and that its precise worth and significance must be determined by future observation."

My best thanks are due to Dr. Steven and to Dr. Allan for their kind permission to write the notes on the cases described above.

[1] THE LANCET, April 18th, 1903, p. 1119.
[2] Robson and Moynihan: Diseases of the Stomach, p. 154.

NOVEL PATENTS.—An American inventor has patented "an eye-protector for fowls comprising two frames each having a transparent plate therein, an elastic U-shaped strap attached at its ends to the frames respectively and a second strap connected to the first strap at right angles thereto and adjacent to the frames." A patent has also been obtained for a bed-warmer. It appears to consist chiefly of a portable stove in which air is heated, a current of this hot air being afterwards sent into the bed through a long flexible tube by means of a pair of bellows. Drawings and specifications of both these contrivances are given in the *Official Gazette* of the United States Patent Office issued on June 16th.

Medical Societies

PATHOLOGICAL SOCIETY OF LONDON.

The Gases of the Blood in Diabetic Coma.—The Nature of Hæmolytic Action.—The Sensitisation of Micro-organisms and Tissues.—Respiratory Diseases among Cornish Tin-miners.

A LABORATORY meeting of this society was held in the Pathological Laboratory, Oxford, on July 4th, Sir JOHN BURDON SANDERSON, the President, being in the chair.

Dr. A. P. BEDDARD, Dr. M. S. PEMBREY, and Dr. E. I. SPRIGGS communicated some observations on the Blood Gases and Metabolism in Diabetes. They said that in severe diabetes the alkalinity of the blood might be normal with a normal carbon dioxide content. In diabetic coma the alkalinity and carbon dioxide content of the blood were reduced and when these changes occurred in the course of diabetes they were accompanied by an aggravation of the clinical symptoms suggesting the threatening of coma. In 26 observations it was found that the reduction of the alkalinity and carbon dioxide content were not necessarily proportional to each other. The administration of alkalies did good even before the alkalinity of the blood was reduced. Estimations of the carbon dioxide tension in the venous blood gave normal values, thus giving no indication that in diabetic coma there was an accumulation of carbon dioxide in the tissues. The blood was further found to be capable of taking up a normal quantity of carbon dioxide. Daily analyses of the sugar, nitrogen, ammonia, and oxybutyric acid in the urine were made in three cases and in one of these the effects of various methods of treatment were observed for two months. It was found in this case that a rigid diabetic diet produced a condition both in the blood and urine approximating to that of coma. These effects were to a great extent removed by the administration of sodium carbonate by the mouth and still further improvement was produced by the addition of some carbohydrate to the food. Codeine produced no beneficial effect upon the metabolism of this patient. In two cases of coma and in two of severe diabetes without coma the condition of "white" blood was observed. In none of them was the appearance entirely due to fat so far as could be made out microscopically. It was noted that the separation of the creamy layer was favoured by a high degree of venosity of the blood. The white substance might occur in severe cases before the reaction of the blood was altered in degree, neither could it be made to disappear by correcting the reaction of blood the alkalinity of which was depressed. In none of the fatal cases did the pancreas show micro-copical changes. Secretin was injected intravenously in one case without causing any amelioration of the diabetes.

Dr. R. MUIR (Glasgow) read a paper on the Action of Hæmolytic Sera, especially as concerned the combining affinities of immune body and complement respectively and the possibility of separating these substances after they had combined. Advantage was taken of the fact that, as first shown by Ehrlich, red corpuscles may take up several times the minimum quantity of immune body necessary for hæmolysis. The following were some of the chief results obtained: 1. Immune body after it had been fixed to the red cells could be readily separated; this was shown by bringing fresh red corpuscles into contact for a time with corpuscles containing several doses of immune body and then adding the complement, the result being that all the corpuscles became laked. 2. When red corpuscles saturated with immune body were hæmolysed with the minimum amount of complement the excess of immune body was not set free but remained attached to the receptors of the red corpuscles; on the addition of fresh corpuscles to the clear fluid sufficient immune body for their lysis could be obtained by dissociation. 3. Complement differed markedly from immune body by the fact that after combination it could not be dissociated. This was the case both when complement united directly with animal and vegetable cells—e.g., kidney cells, yeasts, bacteria, &c.—and when its union was brought about by the intervention of an immune body. 4. The circumstance last mentioned supplied a means of determining how much complement was taken up by red corpuscles treated with immune body and it could be readily shown that red corpuscles saturated with immune body took up much more complement than when they contain merely a hæmolytic dose of immune body. Furthermore, a large series of experiments showed that each additional dose of immune body led to the taking up of an additional and corresponding amount of complement; in other words, the amount of complement taken up stood in direct proportion to the amount of immune body present. 5. Immune body and complement together could not be dissociated from the receptors of the red corpuscles. 6. It had not been found possible to bind immune body to the receptors of the red corpuscles by adding an excess of complement; however much complement was added immune body could always be dissociated. This was well brought out by adding two, three, four, &c., hæmolytic doses of immune body in two series of tubes containing the same quantity of red corpuscles, removing the free immune body after sufficient time had been allowed for combination, and then comparing the amounts of immune body which could be separated before and after complement had been added to the two series. The results were practically the same. 7. On the view that the immune body was an amboceptor, forming a link between red corpuscle and complement, it did not seem possible to explain the fact that immune body alone could be dissociated after complement had been added in excess.

Dr. GEORGE DREYER (Copenhagen) read a paper on the Sensitisation of Micro-organisms and Tissues.

Dr. J. S. HALDANE and Dr. J. RITCHIE communicated a paper on Respiratory Diseases among Cornish Tin-miners.

OPHTHALMOLOGICAL SOCIETY.

Keratitis, with special reference to the part played by the Corneal Cells.—Primary Papilloma of the Cornea.—Plexiform Neuroma of the Face, Lids, Orbit, and Globe.—Exhibition of Cases and Specimens.

AN ordinary meeting of this society was held on July 3rd, Mr. W. LANG, the senior Vice-President, being in the chair.

Dr. LESLIE BUCHANAN gave a lantern demonstration of Sections of the Cornea in Keratitis, with special reference to the part played by the Corneal Cells. Proliferation of corneal corpuscles appeared to take a larger share in the production of new cells than exudation from the vessels of the limbus. Sections of the normal cornea showed a more liberal distribution of corneal corpuscles in the anterior layers than in those further back. In inflamed areas budding of nuclei could be demonstrated and this in advanced cases amounted to complete fragmentation of the original nucleus, the new nuclei being traceable along channels between the corneal fibres, presumably in the course of lymph currents. In other instances fibrillation of the corneal fibres and separation of the elements by œdema were manifest.

Mr. C. W. DEAN reported a case of Primary Papilloma of the Cornea. After pointing out the extreme rarity of the condition he stated that the patient was a man, aged 53 years, who was first seen in August, 1901. There was a tumour growing from the inner side of the left cornea. It had existed for about four years and had commenced as a minute speck on the "clear" part of the eye and had gradually grown, principally towards the pupil. On August 30th the growth was of the size of a flattened pea and whitish in appearance. It was situated at the lower and inner quadrant of the cornea, to which it was closely adherent. It slightly overlapped the conjunctiva. Some fine posterior synechiæ were present. The vision of the left eye was J. 14. Mr. Bickerton removed the tumour and the patient made a rapid recovery. In November the vision was ⅔ and J. 2. The examination of the tumour showed it to be a papilloma with much heaping up of horny epidermis. The site of the tumour was now hardly visible.

Mr. SIMEON SNELL (Sheffield) related three cases of Plexiform Neuroma (Elephantiasis Neuromatosis) of the Temporal Region, Orbit, Eyelid, and Eyeball. The first case was that of a woman, aged 25 years, in which the deformity affected chiefly the right upper lid but involved also the lower eyelid and the tissues of the temporal region. The condition was congenital but had gradually increased. Considerable improvement in appearance was effected by removal of the much thickened tissue. Case 2 was a youth, aged 19 years. He had been first seen as a baby and again five years ago. The condition was congenital and the deformity was very great and affected the left upper eyelid, the temporal region, and the side of the face and orbit. The mucous membrane of the

left alveolus and left side of the palate was also implicated; the eyeball was shrunken and small. The orbit was greatly enlarged and at its outer side was felt a thickened mass in the situation of the lacrymal gland. Two operations were performed for removal of the thickened tissues from the orbit, eyelids, and the integument of the temporo-facial region with considerable improvement in appearance. Case 3 was a boy, aged seven years. The condition affected the left eyelids, the temporal region, and the orbit; the eye was buphthalmic. It was congenital but had gradually increased, especially latterly. The globe was enucleated and on two occasions large portions of the thickened tissues were excised. In all three cases the tissues were dense and contained numerous cells and thick threads. Bleeding was very free.—The histological examination of the second and third cases was presented by Mr. E. TREACHER COLLINS. He had found that the skin in both cases showed thickening of the corium but no inflammatory infiltration. In the subcutaneous tissue numerous sections of nerves were seen cut in various directions; there was marked thickening of the connective tissue elements, both perineurium and endoneurium. Sections stained by Weigert's method showed the nerve fibres in the centre of these masses of thickened fibrous tissue. Examination of the buphthalmic eye from the third case showed enlargement and thickening of the fibrous tissue of the nerves, external to the sclerotic, and lying in the sclerotic. The nerves of the cornea and uveal tract were enlarged and there was a congenital adhesion of the iris to the cornea, with a failure in development of the ligamentum pectinatum. This accounted for the increased tension and subsequent enlargement of the globe.—Mr. SNELL remarked that the literature of the cases was not very extensive. He referred to Alexis Thomson's monograph in which 58 cases of plexiform neuroma in different parts of the body were collected. Out of this number were 18 in which the eyelids, forehead, and temple were affected, but there was no reference to implication of the orbit.

The following cases and card specimens were shown:—

Dr. BUCHANAN: (1) A specimen of an Eye which was quite healthy previously to an injury ten weeks before but which then suppurated and now on removal contained bone in the shrivelled stump; and (2) a case of Keratomycosis.

Dr. W. C. ROCKLIFFE and Dr. L. H. PARSONS: Plexiform Neuroma.

EDINBURGH MEDICO-CHIRURGICAL SOCIETY.

Discussion on the Scottish Medical Corporations and the Public Weal: How they might Develop a Health Conscience.

THE twelfth ordinary meeting of this society was held on July 1st, Sir THOMAS R. FRASER, F.R.S., the President, being in the chair.

The evening was devoted to the reading of a paper by Dr. T. S. CLOUSTON, President of the Royal College of Physicians of Edinburgh, entitled "The Scottish Medical Corporations and the Public Weal: How they might develop a Health Conscience." Dr. Clouston's paper is published at p. 81 of our present issue.

The PRESIDENT thanked Dr. Clouston in the name of the society for bringing the subject so attractively and lucidly before the members and stated that as the subject was so extensive Dr. Clouston had done well to suggest that it ought to be referred to the three Scottish medical corporations for discussion.

Dr. JAMES FINLAYSON, the President of the Faculty of Physicians and Surgeons of Glasgow, said that there was no doubt as to the great interest of the subject and he promised that he would undertake to bring the matter before the Council of his Faculty at an early date. Dr. Clouston had said that the charters of the three corporations admitted of their taking wider powers of influence. Dr. Finlayson, however, thought that the tendency was rather the other way. He instanced various privileges which the Faculty of Physicians of Glasgow had previously exercised and which were now withdrawn. By its charter of 1599 it had powers to examine and to give diplomas to general practitioners; it had also the power to register physicians; it had powers to inspect drugs and to visit every hurt or murdered person, and to make inquiry as to the cause of the injury or murder much in the same way as was done in England by the coroner or in Scotland by the procurator fiscal; and it had the duty of supplying medical advice to the sick poor gratis. All these privileges had been taken away from the Glasgow Corporation and it really seemed as if the functions of the medical corporations were being curtailed rather than extended. He was glad to find that Dr. Clouston had taken up the line of putting it on the basis of education and enlightenment. Dr. Clouston had said that "education on medical matters was longed for," but he (Dr. Finlayson) rather thought that the present tendency was to resent any authority, medical or religious; and that "our masters," the public, would resent any authority which might restrain them. He thought that the real difficulty lay in the action of such an authority. It was rather a question of policy than of medicine, as, for example, the questions of vaccination or the care of the tuberculous; the isolation of the latter and the prohibition of spitting were really not medical but political questions. He thought the frequent meetings of health congresses very important. Such meetings brought together prominent citizens, medical officers of health, members of town councils, and others, and important subjects relating to the public health were debated and were fully reported and discussed in the daily papers.

Dr. W. LESLIE MACKENZIE of the Local Government Board of Scotland said that as a medical officer of health he had often felt the peculiar difficulty of bringing such matters before the public. When he first began the duties of a health officer he had to deal in the counties with large organisations of men who knew nothing of health and on the other hand with the body of medical men. In the counties of Wigtown and Kirkcudbright he had inaugurated a series of health lectures several years ago and it was an easy matter to get an audience who were interested and, as he knew from later communications, who had benefited by such lectures. The same had been carried out in other counties by the health officers and with equally good results. This diffusion of medical knowledge, together with the pressure of the legal authorities, had done great good throughout the counties of Scotland. He had entire sympathy with the whole scope of Dr. Clouston's work and said that in the ordinary sanitary work of the health officer there was abundant scope for the education of the public. He thought that the educational authorities must take a step forwards and he thought that the medical inspection of scholars in schools was of the greatest importance. He considered that the favourable opinion of the Edinburgh Medico-Chirurgical Society would go a long way to make the people believe that such medical inspection of pupils was of great value.

Dr. A. K. CHALMERS (Glasgow) said that several of the magazines had recently discussed many of the questions which Dr. Clouston had referred to, but he was glad that the subject had been brought before a medical audience. It had been stated that in spite of the diminished death-rate sanitary reforms had not increased the vigour of the community. Dr. Clouston had referred to the feeble development of the army recruits, but he (Dr Chalmers) thought that it was precisely that stratum from which recruits were drawn which had not benefited by the advancements in hygiene. The birth-rate was certainly diminishing and if it could be affirmed that though there were fewer children born these were healthier matters would be satisfactory. But this was not true; the infants were not healthier. The infant death-rate had remained almost stationary for years and was quite out of proportion to the death-rates at other ages which had largely benefited by sanitary improvements. Had they any knowledge as to why the infantile mortality was so high? It was usually put down to improper feeding, but as the greatest mortality occurred during the first three months of life he rather thought that they must look to antenatal causes as destroying the children. He thought that this was an excellent subject for inquiry by a committee. Though the birth-rate, as a whole, had undergone diminution it had not done so in the poorer districts of towns within at least the last 100 years.

Dr. J. C. MCVAIL (Glasgow) said that in Dr. Clouston's work on the Neuroses of Development he thought there was the genesis of all that he (Dr. Clouston) had said that night. He did not think that Dr. Clouston had done justice to the public mind when he spoke of the need for a public conscience. He humorously suggested that Dr. Clouston should stand as a candidate for a municipal district. If he chose

a poor district where the ratepayers were working men and where the poor suffered from unhygienic conditions which ought to be remedied he would find at every meeting that his electors possessed a conscience quick and ready to respond. He perhaps would not find much intelligence but these electors were ready for leading. Were Dr. Clouston returned as a member of the council he would assuredly find that the "doing" was very different from the speaking. If, however, he chose as his electoral district a better-class ward he would find amongst his audience plenty of intelligence but very little conscience. When the question of expense as regards, perhaps, the making of open spaces in place of four-storey tenements he would find that the health conscience was somewhat dormant. He did not think that the medical officers of health required any stimulation from the Colleges, they had their work ready to hand and even in greater amount than they could undertake. The apostles of public health were with them at present, though they did not go about the country preaching. The late Dr. J. B. Russell of Glasgow was such an apostle and had worked hard to educate his masters the public, as, for example, in suppressing the scourge of typhus fever. It would have been impossible to abolish this disease unless with the help which the intelligent layman was able to afford.

Lieutenant-Colonel A. B. MCHARDY said that he perhaps looked at "health" from a peculiar point of view. He stated that the infantile mortality amongst the lowest classes in Scotland was appalling. A late investigation showed that of 70 children given birth to by 13 mothers only 15 or 16 were alive. The causes of this enormous infantile mortality were not far to seek. He thought that the health of the community depended to an enormously greater extent on the quality and quantity of the drink than on the food. If inquiry could be made as regards the question of alcohol as well as of other conditions which affected the health conditions of the people they would soon have a steady increase in the population.

Dr. H. HARVEY LITTLEJOHN said that there was an enormous amount of work carried out amongst the poor not only by medical men but by the laity generally so as to educate them on matters of health. He thought that the Colleges could do a great amount of good in this matter.

Dr. A. D. WEBSTER thought that a medical authority on health questions should be established.

Dr. D. NOEL PATON thought that it would be well if the Edinburgh Medico-Chirurgical Society would formulate some means by which the question could be investigated. He would deprecate the institution of a health authority but thought that a committee of inquiry should be formed.

Dr. CLOUSTON, in reply, thanked those present for what he considered to be, on the whole, an expression of their favourable opinion regarding his proposition. He said that it was the general opinion that the medical profession was in reality the source of any advancement in knowledge regarding health. The purport of his communication was not the education of themselves in their societies but rather whether they were not bound to diffuse amongst the laity their knowledge, or at least that part of it which was most important and applicable to the public health. He asked whether the Edinburgh Medico-Chirurgical Society could propagate its views amongst those most concerned with health axioms. He thought that this was hardly its function and that it was not in a position to do so, but the other corporations were however. The latter might formulate a means of diffusing health laws to the community. One speaker had implied that they knew little or nothing about health; he, however, rather thought that they knew a great deal about health. His object really was to put forward his thesis and to have it discussed and to see if in the course of the year some committee could not be appointed. There was immense scope for inquiry and the statements which had been made by the health experts had been favourable to his proposition; they had looked upon it with, he thought, marked sympathy. It had been stated that he had not done justice to the already existing agencies. This was not so, for he had the profoundest respect for the work of the health officers. The latter could help to use the as yet untrodden paths leading to health and could supplement the work of members of the profession in many ways which the legislature had not yet laid down. He noted that none of the speakers had referred to the use of the press of the country. The advantage of this had not seemed to strike the members present. Dr. Clouston believed that the press of the country was a machine made to their hands. He had always found that the editors of such journals were most ready and willing to help in the health of the community, provided that the contributions were made so interesting as to be read by the populace. He thought that they should make a far larger use of the columns of the daily, evening, weekly, and provincial journals. Articles dealing with health subjects in such publications, together with the annual reports of the medical officers of health, would undoubtedly greatly improve the health of the community.

WEST LONDON MEDICO-CHIRURGICAL SOCIETY.—A meeting of this society was held on July 3rd, Mr. Rickard W. Lloyd, the President, being in the chair.—In the course of his valedictory address the President said that in the administration of anæsthetics in operations performed for the cure or relief of rectal diseases, of which the more commonly seen requiring operation were piles, prolapse, ischio-rectal abscess, fistula, fissure, polypi, stricture, and malignant growths, the conditions varied somewhat from those ordinarily met with. First, the majority of the patients were of one of two types, being either strong, full-blooded, and free-living, or weak or cachectic. Secondly, the part to be operated upon was very sensitive, necessitating a depth of anæsthesia that would prevent spasm or movement of the limbs during the painful operative proceedings begun in some cases by forcible and paralysing dilatation of the sphincter ani, some fibres of which might be ruptured. Thirdly, the patient was always of necessity placed for operation in one or other of several positions differing from the ordinary or dorsal position during operation. At St. Mark's Hospital for Rectal Diseases it was customary in cases of piles to have the patient lying on the right side and slightly inclined towards the prone position, with the thighs and knees somewhat flexed. This position was also used for right fistula, right ischio-rectal abscess, and for fissure. For left fistula the corresponding position with the patient on the left side was adopted. For horse-shoe fistula one or other of the above positions or the lithotomy position maintained by the use of Clover's crutch was used and this position was also chosen for Whitehead's operation for piles. The side and prone positions might appear awkward for the anæsthetist, but the tongue did not fall back and the secretions tended to flow from the air-way, advantages which would commend themselves. In the various operations, including Kraske's, for excision of the rectum one of the above positions was adopted or the patient might be prone with the thighs hanging from the end of the table and the knees supported on a chair. The trussed-up position, with the use of Clover's crutch, especially with stout and short-necked people, might cause embarrassment owing to congestion of the head and neck, swelling of the mucous membrane of the mouth, throat, &c., and accumulation of secretion. A low pillow or none at all was needed and the head should be kept on one side. Possibly the pressure of the band on the nerves of the neck might sometimes adversely influence the respiration and circulation. Fourthly, in the preparation of the patient the fact that the bowels were advantageously confined for three days after the operation would suggest that special attention should be directed to clearing them out before it. After describing the preparation as followed at St. Mark's Hospital he said that sickness in the theatre or in the ward associated with the anæsthetic very seldom occurred. In different types of patients and in different operations complications and dangers of special kinds were likely to arise, and these might be anticipated and met more easily, generally speaking, when ether was administered than when chloroform was given. In the event of extreme cyanosis, congestion, swelling of the mucous membrane, and excessive secretion a change from ether to chloroform would lead to a disappearance of those conditions and anæsthesia might be easily established and maintained, much less chloroform being necessary after the preliminary ether than would otherwise be required. It was safer to administer that sequence than chloroform throughout to such a patient. Generally speaking, in all the cases mentioned nitrous oxide gas and ether, or ether alone, were the anæsthetics to be preferred. When gas and ether were employed the gas should be used sparingly or the stage of rigidity would be too long. For anal fissure and fistula gas and ether answered well in most cases, but fistula in ano was so frequently associated with tubercle of the lung

that it was not uncommon to have to decide what anæsthetic or anæsthetics would be best for a particular case. When there was little or no irritability of the respiratory tract gas alone or gas and ether might answer well and if necessary a change might be made to chloroform. In regard to the administration of somnoform his experience led him to conclude that it was unsuitable for rectal cases, although if used as a preliminary to the administration of chloroform he was remarkably struck by its effect, as in the course of half a minute's administration of chloroform following the somnoform suitable anæsthesia was obtained which could be easily and favourably maintained by chloroform. If his further experience confirmed this he considered that somnoform or some such agent as a preliminary to chloroform would be a very valuable method of inducing and maintaining anæsthesia. In using local anæsthetics for these operations it was perhaps advisable to limit them to patients of strong will and who were especially desirous of avoiding general anæsthesia and to cases in which the surgeon knew at the outset exactly how much he might have to do, and he should bear in mind that the patient by instinctively shrinking from the operation and by drawing in the anal region prevented the surgeon from obtaining full access to the part to be operated upon, and in the end the patient might not be grateful for having suffered a greater amount of mental or physical pain than was anticipated and which he would not readily forget. Subsequent operations were more likely to be needed when local anæsthetics had been used than when general anæsthetics had been employed. The surgeon's reason for employing a local anæsthetic might depend upon the general condition of the patient and the nature of, and the time necessary for, the operation. The possible absorption of cocaine should be limited to about a grain. Eucaine might be used more freely. For opening an abscess the part might be frozen with anestile. Whether it was preferable to use a local or a general anæsthetic would be best determined by considering all the circumstances of any particular case.—A vote of thanks to the retiring President having been passed, Dr. Seymour Taylor was elected President for the ensuing year.

DERMATOLOGICAL SOCIETY OF GREAT BRITAIN AND IRELAND.—A meeting of this society was held on June 24th, Dr. J. H. Stowers, the President, being in the chair.—Dr. James Galloway delivered the annual oration, taking as his subject Erythemata as Indicators of Disease. He accepted the provisional classification into (*a*) simple and (*b*) exudative erythemata. The simple erythemata might indicate marked vascular disturbance—e.g., tachycardia, slow pulse, and liability to congestions—as the result of which the tissues became ill-nourished and œdematous and unable to resist ordinary traumatic influences. Thus necrosis might occur, amounting in one case under his charge to the destruction of the skin of half of the trunk. Under exudative erythemata he classed the symptomatic erythemata of contagious diseases, probably due to some bacterial infection—the erythemata due to protozoal infections, malaria, and trypanosomiasis. He referred to Dr. Osler's observations on the close relationship between the erythema group and serious visceral affections, e.g., gastro-intestinal disturbances, nephritis, hemiplegia, lung affections, and various forms of arthritis. Erythemata might indicate blood poisoning from toxins due to improper food or imperfect digestion, to various forms of poisoning, and to the use of particular drugs and serums. He concluded by referring to lupus erythematosus and its relationship with erythema multiforme and after giving his reasons for not believing in the tuberculous origin of this disease stated his belief that it was really a peculiar form of erythema multiforme and its cause a toxæmia, arising from various sources, just as in erythema multiforme. Of possible sources he mentioned hepatic cirrhosis, chronic alcoholism, chronic nephritis, and absorption of poisons produced by septic micro-organisms.—Dr. V. H. Rutherford showed three cases: (1) Molluscum Contagiosum; (2) Multiple Lipomata; and (3) a Case for Diagnosis.—Dr. A. Eddowes exhibited a case of Urticaria Pigmentosa.—Mr. A. Shillitoe showed a Case for Diagnosis.—Dr. P. S. Abraham showed two cases: (1) An Extensive Nodular Eruption; and (2) a Bullous Dermatitis.—Dr. W. B. Warde exhibited two cases: (1) A Generalised Necrotising Affection in a Tuberculous Subject suffering from Raynaud's Disease; and (2) Chronic Herpes.—Dr. E. G. Graham Little showed (1) a case of Acne Scrofulosorum; and (2) a case of Acne Varioliformis.—Dr. J. Porter Parkinson showed a case of Leucodermia with Alopecia.

Reviews and Notices of Books.

Ocular Therapeutics according to the Most Recent Discoveries. By Dr. A. DARIER. Translated by SYDNEY STEPHENSON, M.B., C.M. Edin., Ophthalmic Surgeon to the Evelina Hospital. London: J. and A. Churchill. 1903. 8vo, pp. 278. Price 10*s.* 6*d.* net.

THIS work is a real and valuable addition to the literature of ophthalmology. The conservative disposition of the English mind is well shown by the obstinacy with which antiquated methods of treatment are adhered to in our institutions and the rarity with which new remedies gain entrance into ordinary practice. For years the desk of the ophthalmic surgeon had upon it only vinum opii, solution of atropine, half-a-dozen bottles containing solutions of nitrate of silver of various strengths, and a stick of sulphate of copper. A few others such as yellow ointment and carbon bisulphide were successively added, the bisulphide to be soon discarded, and more recently cocaine and eserine solutions have made their appearance. Of late years many new remedies have been introduced in America, in France, and in Germany, but they have been slow in gaining a footing in the United Kingdom. The effects of one or two may be familiar to men who are in large practice, but how many English ophthalmologists have made themselves familiar with eucaine, holocaine, euphthalmine, acoine, ichtargan, and dionine? which Dr. Darier describes as ocular anæsthetics that are in some respects superior to cocaine itself. Even protargol (proteinate of silver), a local remedy possessing nearly all the advantages of silver nitrate without any of its drawbacks, is not to be found in every surgery. How many English ophthalmic surgeons have studied or even tried the effects of adrenalin injections?

Dr. Darier speaks in very high terms of the methods of subcutaneous and intravenous injections, especially of solutions of corrosive sublimate. He appears to have practised them largely without having met with a serious accident. Following the example of Abadie, by whom the practice was popularised, he has employed solutions of peptonate of mercury as well as of corrosive sublimate, but he particularly recommends the use of the following solution: cyanide of mercury, one-tenth of a gramme; chloride of sodium, 0·08 of a gramme; and sterilised distilled water, 30 grammes. Three cubic centimetres of this solution (which contains one centigramme of cyanide of mercury) is to be injected into a vein at the bend of the elbow, rendered conspicuous by a bandage round the arm, by means of a Pravaz's syringe previously passed through a flame. The earliest toxic reaction is colic or diarrhœa. The occurrence of either of these symptoms should at once arrest further injections which otherwise may be repeated once or twice a week or even daily. Such treatment he has found highly beneficial in obstinate affections and in those of slow and uncertain evolution with relapses such as parenchymatous keratitis, irido-choroiditis, and choroiditis. But, as Dr. Darier remarks, the eye lends itself admirably to local therapeutics. He goes so far as to say that with the galvanocautery and subconjunctival injections of cyanide of mercury or of chloride of sodium every infectious ulcer of the cornea taken in time can be promptly cured. Such treatment is equally efficacious in septic wounds of the eye when ocular abscess is imminent. Dr. Darier shows that astonishingly good results have been obtained from subconjunctival injection in essential maladies of the deeper membranes of the eye, such as irido-choroiditis, retinitis, and neuritis, the etiology of which is very obscure but in which rheumatism, syphilis, and various auto-intoxications play an important part. Gummata of the iris may by this means be rapidly removed. Dr. Darier does not fail to caution those who intend to practise

this method of local treatment that subconjunctival injections are contra-indicated whenever the absorption of the medicament by the obstructed lymphatic channels is rendered difficult or impossible by a circulatory stasis. The cyanide of mercury then becomes an intense local irritant. In these lectures the reader will find in detail the relative advantages in regard to rapidity of anæsthetic and analgesic action; as well as, in regard to the intensity, the duration, antiseptic power, toxicity, and other attributes of a host of new remedies with which Dr. Darier has experimented. He recommends for analgesic action a solution in water of acoine with cyanide of mercury and common salt, and still more strongly dionine, a derivative of morphine. Those who are interested in new preparations will find comments on argonium which is a mixture of casein and silver; itrol, or citrate of silver; actol, or lactate of silver; and nargol, or nucleinate of silver; but protargol appears to be the silver salt combining the greatest number of advantages with the fewest inconveniences. It has a profound germicidal action without being so caustic as silver nitrate and has the incidental advantage of being less liable to stain the conjunctiva.

We rise from a careful perusal of this book convinced that a large field is open to experimental inquiry into the effects of mercurial and other subconjunctival injections and that as a result some of the diseases of the choroid and retina now regarded as incurable will be found amenable to treatment and that if entire restoration to health is not obtained considerable amelioration in the symptoms, and especially improvement in vision, may be effected.

A System of Physiologic Therapeutics. Edited by SOLOMON SOLIS COHEN, A.M., M.D., Professor of Medicine and Therapeutics in the Philadelphia Polyclinic. Volume IX.: Hydrotherapy, Thermotherapy, Heliotherapy, and Phototherapy, by WILHELM WINTERNITZ, Professor of Clinical Medicine in the University of Vienna, assisted by Dr. ALOIS STRASSER, Instructor in Clinical Medicine at the University of Vienna, and Dr. B. BUXBAUM, Chief of the Hydrotherapeutic Institute of Vienna; and Balneology and Crounotherapy, by Dr. E. HEINRICH KISCH, Professor in the University of Prague. Illustrated. London: Rebman. 1902. Pp. 570. Price 12*s.* 6*d.*

WE may remind our readers that Dr. Cohen's "System of Physiologic Therapeutics" is intended to form "a practical exposition of the methods, other than drug giving, useful in the prevention of disease and in the treatment of the sick." This volume contains a vast amount of information on hydrotherapeutics and allied subjects and is a perfect storehouse of the modern views held in connexion therewith. We are informed in the preface that the matters discussed in this volume have a twofold association—that of fundamental principle and that of convenience. Much of the therapeutic utility of water depends, as Professor Winternitz points out in his contribution, upon its "thermic influence"—that is to say, upon its physical availability for altering the body-temperature, generally or locally, primarily or secondarily, by addition or by abstraction of heat. The consideration of other methods of thermotherapy, as also that of psychrotherapy, or excessive cold, is thus naturally associated with the study of hydrotherapy; and, "as a part at least of the physiologic, therapeutic, and morbific powers of the radiations of the sun and other luminous bodies is due to heat, the subjects of heliotherapy and of general phototherapy likewise find here an appropriate connexion."

The first part of this volume is devoted to a discussion on the physiologic basis of hydrotherapy and the effects of hydrotherapeutic measures upon special tissue and organs are fully considered, as are also "the chemical effects and internal use of water."

The fundamental principles and practical applications of heliotherapy and phototherapy are partly described by Dr. Winternitz and in a "supplemental chapter" by Dr. J. H. Kellogg the general and local use of sunlight is considered. The use of "sun-baths" has received more attention in America than in this country, although this therapeutic measure has been adopted in at least one English sanatorium for the treatment of tuberculosis. Dr. Kellogg maintains that metabolism is unquestionably stimulated by the reflex action set up by the rays of light impinging upon the nerve-endings of the skin and that oxidation of living tissues is increased by the action of sunlight. Diogenes likewise had a very high opinion as to the salutary effects of the sun's rays, but beyond the general beneficial effects of sunshine combined with fresh air the therapeutic effects of direct sunlight are still somewhat vague.

The second part of the book contains a very thorough consideration of balneology and crounotherapy, meaning by the latter term the subject of medicinal waters; the writer is Professor E. Heinrich Kisch of Prague and Marienbad. Dr. A. C. Peale of Washington contributes an introductory chapter on the Classification of Mineral Waters with special reference to those of the United States.

Supplemental chapters are also introduced on Electrophototherapy, the Principles of Thermotherapy, and Saline Irrigations and Infusions. This volume has thus been made very complete and will be found most useful as a work of reference.

Technical Mycology: the Utilisation of Micro-organisms in the Arts and Manufactures. By Dr. FRANZ LAFAR, Professor of Fermentation-Physiology and Bacteriology in the Imperial Technical High School, Vienna. Translated by CHARLES T. C. SALTER. Vol. II., Eumycetic Fermentation. Part I, with 68 figures in the text. London: Charles Griffin and Co., Limited. 1903. Pp. 189. Price 7*s.* 6*d.*

IT is five years ago since the first volume of this work was issued and so favourably was it received that requests soon followed for the early publication of the companion volume. It appears from the English publishers' note that the German publishers have now arranged to issue a second volume in parts rather than to await the completion of the work. The present instalment is Part I. of the second volume and is devoted to the eumycetes or higher fungi, Vol. I. relating to schizomycetic fermentation. We trust that when the work is concluded the publishers will see their way to issue the entire contribution in one volume. Apart from the enormous labour which the author must have expended in dealing with the subject in such a complete way, he should also be congratulated upon the abundant references which he has given to original researches upon the subjects dealt with. Indeed, the insertion of so many authors' names in capital letters in the context may prove a source of irritation to many, for this plan breaks up the sentences in the paragraphs and interferes decidedly here and there with the continuity of matter and description. There are several very interesting chapters in this volume and notably that on Mineral Nutrient Materials (Chapter xii.). The alkalies, the metals of the alkaline earths, the metals of the iron groups, and even sulphur, selenium, silicon, phosphorus, and arsenic are considered in their relationship to materials occasionally assimilated by fungi. According to the present state of our knowledge, however, the author states that nine elements are indispensable for the structure and development of the eumycetes. These are carbon, hydrogen, oxygen, nitrogen, sulphur, phosphorus, potassium (or rubidium), magnesium, and iron. Subsequent chapters refer to the influence of light on the development of the eumycetes, while the final section deals with the form, structure, and chemical composition of the yeast cell. Here necessarily the pure culture method first introduced into the fermentation industry by E C Hansen

of the Carlsberg Laboratory, Copenhagen, is described. Apart from the practical value of the book for the use of brewers, distillers, chemists, and others interested in particular in the processes of fermentation in their application to industries, it is certain also to prove of interest to all those studying biological problems in general.

Papers relating to the Investigation of Malaria and other Tropical Diseases and the Establishment of Schools of Tropical Medicine. Printed for His Majesty's Stationery Office by Darling and Son, 34-40, Bacon-street. 1903 Pp. 43 Price 4½*d*.

THIS collection of papers, recently issued by the Government as a "white book," shows how great is the debt owed to Mr. Chamberlain's initiative by all sojourners in the tropics. No previous Secretary of State for the Colonies has worked so hard for the sanitation of our malaria-stricken dependencies in Africa, or has been to such an extent the moving force for the extinction of these diseases, as the present head of the Colonial Office, and his term of office will be memorable for the great advances which have been made.

The papers in question open with a circular letter to the governors of all colonies in the tropics in which Mr. Chamberlain summarises the steps which have been taken for the extinction of malaria and for the training of medical officers in the treatment and prevention of tropical diseases and he also makes some suggestions as regards the future. His notice was early attracted to the great mortality amongst Europeans in climates like those of West Africa and his attention was fixed on special education in tropical medicine for the medical officers of the Crown Colonies. To insure this it seemed advisable (1) to establish a special training school in tropical medicine; (2) that the medical schools should give greater prominence to the teaching of tropical medicine; and (3) that the periodical medical reports from the tropical colonies should be recast on one uniform plan designed to throw light on the diseases peculiar to the latter. As regards the first point, in 1898 the Colonial Office communicated with the Seamen's Hospital Society regarding the founding of a tropical school at the branch hospital, Albert Docks, and in 1899 the school was opened, a sum of £3500 being guaranteed to cover the cost and equipment of the necessary buildings. The school has proved a success, but increased accommodation is necessary and Mr. Chamberlain estimates that a further sum of £12,000 will be required for the necessary new buildings. As regards the second point, the medical schools were communicated with and the correspondence showed that in upwards of 12 British medical schools arrangements for special instruction in tropical medicine would shortly be carried out, whilst respecting the third point, a committee submitted a model medical report for use in the colonies.

In July, 1898, the coöperation of the Royal Society was asked for the equipping of a scientific investigation with especial regard to the deadly malarial and blackwater fevers of the West Coast of Africa. Dr. C. W. Daniels of British Guiana, who has done so much good work in tropical medicine, Dr J. W. W. Stephens of Cambridge University, and Dr. S. R. Christophers of University College, Liverpool, were selected by a joint committee and commenced their work; first in British Central Africa from Blantyre as a centre. Before, however, starting for Central Africa the Commission paid preliminary visits to Italy and India. During this time, it having been suggested that a collection of the winged insects which in those colonies bite men or animals should be made and sent to the Natural History Museum, South Kensington, specimens were collected and a monograph was subsequently published under the editorship of Mr. Theobald which was of great scientific and practical value. The members of the commission met at Blantyre in April, 1899, and remained there conducting their investigations until September, when Dr. Stephens and Dr. Christophers proceeded to Sierra Leone and Lagos and the Gold Coast, working there till toward the end of 1900. Dr. Daniels continued, however, his investigation in Central Africa till he was invalided home in 1900. Dr. Christophers subsequently went to India. Reports communicating the results of their work were published by the Royal Society and printed copies of the same were sent to the colonies.

An account of the historical expedition of Dr. L. W. Sambon and Dr. G. C. Low to the Roman Campagna and of their proving on themselves that protection against mosquitoes carries with it immunity from malaria is given. The good work done by the Liverpool School of Tropical Medicine is next detailed. The report concludes by summarising the results obtained. These are, in truth, far-reaching, as shown by the success obtained in extirpating malaria on the West Coast of Africa. Sierra Leone, the Gold Coast, and Lagos bid fair soon to lose their unhealthy character. The Secretary of State for the Colonies is seen in the report to have had constantly before his mind the improvement of the countries under his control. To the report are attached appendices by Sir W. Macgregor, Governor of Lagos, on Malarial Fever in Egypt and Italy, and by Dr. Hamilton Wright, the Director of the Institute for Medical Research, Federated Malay States, detailing the work done in the institute and the improvements in the buildings connected therewith.

Of the questions treated in this interesting summary perhaps one of the most important is that relating to Blackwater Fever. Dr. Stephens's and Dr. Christophers's observations led them to the conclusion that there is no special parasite in this fever but that it is essentially of malarial origin. With the onset of an attack the organisms disappear, leaving, however, distinctive traces of themselves in certain features of blood corpuscles; moreover, the occurrence of blackwater fever is coincident with high malarial endemicity—"that is, with the large occurrence of the malarial parasite in the blood of native children." Hence the prophylaxis of blackwater fever is in the main the same as that of malaria—viz, the prevention of the bites of mosquitoes or the exhibition of quinine.

Handbook of Physiology. By W. D. HALLIBURTON, M.D. Lond., F.R.S. Fifth edition. London: John Murray. 1903 Pp. 912. Price 14*s*.

THIS excellent manual, formerly known under the time-honoured title of "Kirkes' Physiology," has, seeing that Dr. Halliburton is now its real author rather than its editor, become identified exclusively with his name. The change of title was made with the issue of the fourth edition and the present edition is equivalent to the eighteenth edition of Kirkes' Physiology. The edition under review offers little fresh matter for criticism, indeed, as Dr. Halliburton admits, the alterations made in the main text are only of a minor kind. The science of physiology, however, does not stand still and some important contributions have been made during quite recent years, notably in connexion with digestion and the nervous system. These fresh additions to our knowledge have been dealt with in a very important appendix, a course which Dr. Halliburton adopted owing to the necessity of getting out the edition rapidly. We observe, however, that references are made in the main text to the subjects just indicated. No subject of greater importance to physiology has received more successful study during the past decade than that bearing upon the nature of solution. Accordingly, this subject in its important bearings on the explanation of osmotic phenomena receives full treatment

so far as it applies to these phenomena in physiology. Similarly, the experiments of Sherrington and Grünbaum following those of Horsley and Beevor on the localisation of the sensori-motor area in the human brain are clearly recapitulated. This section is followed by an account of the knowledge gained of the structure and functions of the human brain by the application of Flechsig's embryological method and his recent work on myelogenesis form the concluding section of the appendix. The work is admittedly the standard manual of physiology for students of medicine who cannot do better than adopt this book as the outline of their study of the functions of living things.

A Text-book of Plant Diseases caused by Cryptogamic Parasites. By GEORGE MASSEE, F.L.S., Principal Assistant (Cryptogams), Royal Herbarium, Kew. London: Duckworth and Co. 1903. Pp. xii. 472. Price 5*s*.

THE preface states: "The aim of this book is to enable those directly occupied in the cultivation of plants, and with but a limited period of time available for study, to determine the nature of diseases caused by parasites of vegetable origin; to apply in the most approved manner those curative and preventive methods which experience has shown to be most successful in combating the particular form of disease under consideration; and finally, to include in the daily routine of work precautionary methods which, without being costly, frequently prevent a slight disease from assuming the proportions of an epidemic." The work does not profess to deal with all the diseases of plants or with the maladies of all plants but rather is intended to serve as a guide to the nature and cure of the diseases of cultivated plants caused by cryptogams, chiefly fungi.

The value of such a book, coming as it does from so high an authority, cannot be over-estimated, for it is impossible to shut our eyes to the fact that ignorance of these matters is still very rife among farmers and others concerned in the cultivation of plants. For notwithstanding the valuable work of experimental stations, the efforts of the Board of Agriculture, and the existence of text-books such as the one before us, it is not a very difficult matter to discover farms, for instance, where no precautions are taken to prevent the occurrence of disease¹ crops, and even when a disease is prevalent we have seen the attacked plants either left standing among the healthier ones or, if rooted up, carelessly thrown down on the nearest edge of the field.

Passing on to the contents of the book, we find that after a short introduction there is a general consideration of fungi, their mode of nutrition, method of growth, and reproduction. The vine mildew (*Plasmopara viticola*) and the rust of wheat (*Puccinia graminis*) are the chief examples taken to illustrate the life-history of this class of plants. An excellent feature of this section is the printing of important paragraphs in italics so that the attention, even of a careless reader, can hardly fail to be arrested. Besides the fungi there are described briefly lichenes, algæ, myxogastres, and bacteria. Fungicides and methods of treatment are adequately entered into, full directions being given regarding the preparation and mode of application of the most effective solutions and powders. Many of these are easy of application; others, we imagine, will hardly be popular. As an example of the latter may be mentioned fumigation with hydrocyanic gas, which "may be accomplished by placing over the tree a tent of some closely woven material, as eight-ounce duck or drilling. This should be oiled and painted black if the treatment is to be made in daylight." From what has already been said it is obvious that the general considerations, which, of course, are of the utmost importance for a proper understanding of the subject, have not been neglected. The succeeding portions of the work deal with the fungi and other cryptogamic organisms causing diseases of cultivated plants. Each parasite and its effects are described and also the preventive means to be followed. This necessitates a certain amount of repetition but, as the author remarks, this is quite intentional as the book is not a novel but a work of reference, "hence under each disease curative and preventive methods are fully explained, in preference to referring to another disease where the line of treatment is somewhat similar." One of the final sections of the volume is devoted to the scientific description of the fungi enumerated as causing diseases which will be of value to the student. In conclusion let us say that we consider the work excellent; it is well arranged and indexed and cannot fail to be of the greatest use to cultivators of plants.

Public Health Laboratory Work. By HENRY R. KENWOOD, M.B., C.M. Edin., D.P.H., F.C.S. Third edition, with Illustrations. London: H. K. Lewis. 1903. Pp. 606. Price 10*s*. 6*d*.

THE issue of a third edition of this work is quite in accordance with our opinion of its value in public health laboratory work. It contains exactly the kind of information which the modern public health student wants. During the last few years the field of practice of the public health officer has necessarily widened and amongst other things a knowledge of applied bacteriology and laboratory chemistry is essential. It is not so very long ago that handbooks on public health contained no section at all on bacteriology, whilst analytical chemistry had comparatively few applications. A consideration of the methods and instructions given by Dr. Kenwood in the sections dealing with food, air, and water shows clearly that he realises the importance of an intimate acquaintance with the practical details of the subject. The methods of analysis have evidently been tried and proved and proper attention is given to those details which lead when observed to trustworthy results. Dr. W. G. Savage has dealt with the bacteriological side of public health work in Part VII., which includes not only the practical details of the processes applicable to the bacteriological examination of water, milk, soil, &c., but also instructions as to making the bacteriological diagnosis of diseases such as diphtheria, typhoid fever, and tuberculosis. Though, as we have said, the field is obviously wide, yet the authors may be heartily congratulated on having succeeded in making the practical section of the subject as complete as possible. In this regard every chapter is of value and altogether the book is a trustworthy guide as well as an excellent source of reference, both to the medical officer of health and to the candidate for the D.P.H. diploma.

EXMOUTH COTTAGE HOSPITAL.—The new cottage hospital at Exmouth was formally opened by Lady Gertrude Rolle on June 27th. The hospital consists of two main wards containing six beds each for males and females respectively, in addition to which there are two small wards for special cases.

FOREIGN UNIVERSITY INTELLIGENCE.—*Cracow:* Dr. Franz X. Lewkowicz has been recognised as *privat-docent* of Children's Diseases.—*Erlangen:* Professor Franz Penzoldt has been appointed Director of the Medical Clinic in succession to Dr. von Strümpell who goes to Breslau. Dr. Fleischer is about to retire from the chair of Internal Medicine.—*Halle:* Dr. Binswanger of Jena has been offered the chair of Psychiatry and Nervous Diseases vacated by the retirement of Professor Hitzig.—*Lyons:* Dr. Florence, Professor of Materia Medica, has been transferred at his own request to the chair of Pharmacy.—*Munich:* Professor Kraepelin of Heidelberg has been appointed to the chair of Psychiatry in succession to Dr. Bumm.—*Naples:* Dr. Antonino D'Antona has been appointed to the chair of Clinical Surgery in succession to the late Dr. Gallozzi.—*Prague (Bohemian University):* Dr. Johann Huatek has been appointed Extraordinary Professor of Special Pathology and Therapeutics.—*Vienna:* Dr. Karl Landsteiner has been recognised as *privat-docent* of Pathological Anatomy.

Analytical Records
FROM
THE LANCET LABORATORY.

(1) MANGANESE CITRATE (SOLUBLE); (2) MANGANESE AND IRON CITRATE (SOLUBLE); AND (3) MANGANESE AND IRON PHOSPHATE (SOLUBLE).

(MESSRS. BURROUGHS, WELLCOME, AND CO., SNOW-HILL BUILDINGS, LONDON, E.C.)

THESE preparations form a very pretty series of soluble manganese and iron salts. The citrates of manganese and of manganese and iron represent, of course, organic combinations of the respective metals. The manganese and iron salt contains about 7 per cent. of manganese and 14 per cent. of iron, and the manganese salt contains about 12 per cent. of manganese. We have by analysis confirmed these figures. The preparations exist in the form of crisp glistening scales which are readily soluble in water. The addition of ammonia darkens the solution of the salts but there is no precipitate produced. The therapeutical indications of these preparations are obvious and they offer a very advantageous means of administering manganese and iron.

"OVUMALT."

(THE CONDENSED EGG SYNDICATE, LIMITED, 85, TOOLEY-STREET, LONDON, E.C.)

Ovumalt is not only a preparation in which fresh eggs are preserved but the preserving vehicle contains also according to our experiments an active (digestive) extract of malt. Our analysis assigns to ovumalt the following composition: moisture, 22·20 per cent.; mineral matter, 1·30 per cent.; proteid, 11·90 per cent.; sugar, 59·60 per cent.; and fat, 5·00 per cent. The proportion of fresh egg present is indicated by the amount of proteid and fat. As will be seen, the amount of egg present is not very high in relation to the amount of sugar. The compound, of course, contains ovolecithin and therefore phosphorus in organic combination which is valuable in disorders of the nervous system and in debility. We have also examined preparations containing respectively the whole egg, the yelk, and the white both in sweet and unsweetened form. They are quite satisfactory and highly nutrient articles.

"FELIXIR."

(BOOTH'S DISTILLERY, LIMITED, 55, COW CROSS, LONDON, E.C.)

This is a spirit which is described as having been doubly rectified and thoroughly matured in sherry casks. This description accords perfectly with the results of analysis which we have obtained in regard to the secondary products. They are as follows, recorded in grammes per hectolitre of alcohol present: absolute acidity reckoned in terms of acetic acid, 37·80; aldehyde, 4·20; furfural, 0·52; higher alcohols, 105·00; ether reckoned as ethyl acetate, 49·98. It will thus be recognised that this spirit contains far less secondary products in the shape of aldehydes, furfural, and higher alcohols than does malt whisky or spirit produced in the pot-still. Analysis further gave the following results: alcohol, by weight 43·00 per cent., by volume 50·57 per cent., equal to proof spirit, 88·62 per cent.; extractives, 0·41 per cent.; sugar, 0·25 per cent.; and tartaric acid, 0·03 per cent. The presence of a notable amount of ethers and tartaric acid indicates storage in sherry casks. The spirit is very pure and well matured. It has an agreeable flavour which is decidedly like that of gin but the colour resembles that of pale sherry.

MATÉ TEA.

(THE MATÉ TEA COMPANY, 180 AND 181, FLEET-STREET, LONDON, E.C.)

According to our analysis the feature of this specimen of Paraguay tea is a quite small proportion of tannin as compared with ordinary tea, while the amount of oils yielded is relatively high. The results of analysis were as follows: moisture, 7·00 per cent.; caffeine, 0·62 per cent.; mineral matter, 6·4 per cent.; tannin, 6·13 per cent.; and oils and waxy matter, 3·12 per cent. Hot water extracted 34·40 per cent. of the leaf, of which 4 per cent. consisted of mineral matter. Maté tea affords a pleasant and refreshing beverage without the drawbacks of ordinary tea. It certainly seems better adapted for dyspeptics than is ordinary tea, whilst it contains the same stimulating principle caffeine. Maté tea, too, has hardly any astringent effect compared with ordinary tea. The flavour of Maté tea is pleasantly delicate. The leaf may be obtained either "broken" or in powder.

EUCRYL PREPARATIONS.

(EUCRYL, LIMITED, 9, RANGOON-STREET, LONDON, E.C.)

The basis of these disinfectant preparations, unlike so many of this class, is pleasant. The bath eucryl preparation is particularly so, forming a very agreeable adjuvant to the bath and having a pleasant but slightly stimulating effect. Bath eucryl is a clear, pale-brown liquid with an alkaline reaction, forming with water an opalescent fluid. The eucryl fluid disinfectant is a similar preparation containing, however, in addition to eucalyptus and pine oils, coal-tar derivatives which make it better adapted for ordinary disinfectant purposes. "Eucryl" forms also the basis of an excellent toilet soap and tooth powder.

"LACVITUM."

(PRIDEAUX'S PURE CASEIN AND LIFE FOOD COMPANY, MOTCOMBE, DORSET.)

This is a somewhat remarkable preparation since it is simply milk minus water and on adding a definite amount of hot water to it and stirring well a fluid is obtained presenting all the characteristics of milk and showing on analysis an identical composition even in regard to fat. In a word, it is a full cream milk powder with nothing added and only water carefully abstracted by evaporation. As natural milk contains nearly 90 per cent. of water the concentration in regard to nutrient value is of course considerable—an important fact when the difficulties and expense of transit of milk are considered. Further, the powder is not liable to decomposition and is sterile. Our analysis gave the following results: moisture, 5·34 per cent.; mineral matter, 5·96 per cent.; milk sugar, 31·26 per cent.; milk fat, 29·40 per cent.; and proteid, 28·04 per cent. This is the normal composition of milk of good quality, excluding water. It is obvious that lacvitum may have a number of very valuable applications in dietetics. Its nourishing value is, we need hardly point out, very high and it contains all classes of reparative material. In short, lacvitum is a complete food in concentrated form.

RENINE NATURAL MINERAL WATER.

(RENINE, LIMITED, 254A, HIGH HOLBORN, LONDON, E.C.)

This water owes its name apparently to the fact that it has marked diuretic properties, due partly to the nitrate of potassium which it contains. The water is drawn from the springs at Reipertsweiler, a village in Alsace. According to our analysis the "Renine" contains 0·376 gramme per litre of mineral matter in solution. The amount of nitrate of potassium is approximately one half of the total mineral matter. The rest is made up of the alkaline chlorides and the carbonates of the alkaline earths. The water is stated to be of value as a diuretic and a mild laxative and has been used in the treatment of heart disease in French clinics.

TELMA BISCUITS AND BREAKFAST FOOD.

(TELMA, LIMITED, 57, FENCHURCH-STREET, LONDON, E.C.)

We have already reported upon some of the "Telma" food preparations which have the merit of being rich in all classes of nutrient material. The proportion of proteid is excellent, as is that of fat, and the fact that the foods are malted renders them easy of assimilation. The breakfast food has an agreeable and appetising flavour. The proteids are to a large extent present in the soluble state. Telma biscuits are made both with and without sweetening material. We prefer

the sweetened biscuit. It contains an excellent proportion of fat and proteid and should prove a very nourishing article.

PEARSON'S ANTISEPTIC.

(PEARSON'S ANTISEPTIC CO., LIMITED, 254A, HIGH HOLBORN, LONDON, E.C.)

This is a well-made alkaline cresylic compound which forms a perfectly uniform milky fluid with water. Ten volumes yield eight volumes of coal-tar derivative on acidifying with hydrochloric acid. According to Dr. Klein the preparation is an effective germicide, his experiments relating in particular to the sterilisation of cultures of the bacillus coli communis and staphylococcus pyogenes aureus.

SPECIAL LIQUEUR WHISKY.

(DOUGLAS, GORDON, AND CO., 7, REGENT-QUAY, ABERDEEN.)

The analysis of this whisky was as follows: alcohol, by weight 43·00 per cent., by volume 50·57 per cent., equal to proof spirit 88·62 per cent.; extractives, 0·9 per cent.; and fixed acids, calculated as tartaric acid, 0·06 gramme per litre. In regard to secondary products the following were the results, represented in grammes per hectolitre of absolute alcohol present: acidity, reckoned as acetic acid, 12·00; aldehydes, 20·00; furfural, 2·50; ethers reckoned as ethyl acetate, 70·40; and higher alcohols, 180·00. The whisky is thus seen to be a "blend," but for the purpose of blending old matured spirit has been employed. There is nothing in these results controverting the statement made by the blenders that this spirit is "composed principally of old malt Highland whiskies" blended in order to produce delicate flavour and *finesse*. The whisky is exceedingly "soft" to the palate and the flavour is mildly "malty." Storage in sherry casks is further indicated by certain of the results of the above analysis. The whisky is a well-matured and judiciously blended spirit.

PERKRESAN.

(HARTMANN, HOHMANN, AND CO., 35, SEETHING-LANE, LONDON, E.C.)

This is an alkaline fluid containing chiefly the cresylic derivatives of coal tar. It forms with water a satisfactorily uniform opalescent fluid. On adding hydrochloric acid to ten volumes of the fluid six volumes of antiseptic oils separated. These cresylic oils have, of course, a marked germicidal effect which renders the preparation an efficient disinfectant.

New Inventions.

A NEW AURAL DRESSING PROBE.

THE accompanying illustration represents a little instrument which I have designed and which I have found very useful for washing, and for what is even of greater importance drying, of the external meatus, and introducing cotton-wool when it is desired to leave a pledget of this material medicated or otherwise *in situ*. The instrument needs little description. For use a piece of wool is rolled on it and introduced by a rotary motion, which is continued during withdrawal. Should it be desired to leave the wool in the ear it is only necessary to reverse the motion, when the appliance will unscrew itself readily from the plug. To insure this the pitch of the screw is coarse and the thread wide, while the whole tapers to a blunted end and not to a sharp point as in most of the screw ear probes,

which on this account are dangerous in unskilled hands. The shoulder in my instrument would also tend to prevent its being inserted too far within the ear.

From personal experience I am able to speak of its thorough efficiency in cases of the tympanum with discharge, and in two cases of eczema of the external meatus I used it with success; the introduction of, and leaving in, a tight plug checked and improved the narrowed condition of the parts so often troublesome in this affection. In these days when dry dressings are so much in vogue I do not think their advantages are sufficiently impressed on patients suffering from ear troubles.

Messrs. Down Bros., Limited, St. Thomas's-street, Borough, have admirably carried out my suggestions and have made an efficient instrument in metal so that it may be cleansed thoroughly by boiling. It is made in two forms, with and without caps.

W. DIGBY LONGFIELD,
Plymouth, July 5th, 1903. Deputy Inspector-General, R.N.

THE EPILEPTIC COLONY AT EWELL.

THE above illustration gives a general view of the new Epileptic Colony of the London County Council at Ewell, opened, as we announced last week, by H.R.H. Princess Louise (Duchess of Fife) and the Duke of Fife. We comment in a leading article which appears at p. 110 upon the buildings and upon the colony system of treatment of epileptics.

THE LANCET.

LONDON: SATURDAY, JULY 11, 1903.

The Sanitary Institute: Congress at Bradford.

THE inaugural address delivered by the Earl of STAMFORD, the President, at the twenty-first Congress of the Sanitary Institute, which commenced on July 7th, was interesting as being the opinions of one who is, to quote his own words, "an average intelligent observer, and one taking the keenest interest in the subject." The subject, again to quote the President, was "not so much the scientific side of sanitation as its general aspects and scope, its effects upon history, and its application by means of political and administrative methods." We need not here discuss the theory mentioned by Lord STAMFORD as to whether or not the fall of the Roman empire, both east and west, was due mainly to epidemics, but none of our readers will fail to agree with Lord STAMFORD when he says that "it must be obvious to all of us how intimately connected sanitary science has been with the political and social growth of the British race. One by one diseases which in former days used with periodical frequency to decimate and more than decimate our population have been stamped out or rendered comparatively innocuous by the application of the laws of sanitation." No one will dispute this contention, but, as Lord STAMFORD proceeded to show in the remainder of his address, much still remains to be done. The hygienic conditions of the home, of the school, and of the factory are still far from being what they should be, and as these three items practically make up the modern city it is of the greatest importance that the buildings should be hygienic and that those who occupy them should be taught the laws of hygiene and how to practise them.

One portion of Lord STAMFORD'S address laid stress upon a point which is too often forgotten. He is alluding to the fact that very many of the poorer public have no intelligent habits as inmates of a dwelling, and his words are so weighty that we quote them: "The scientific study of matters affecting the public health and the experience gained in enforcing the sanitary laws has resulted in the accumulation of a mass of knowledge and information as to the effect of overcrowded and unhealthy dwellings on the national health. The penalties for disobedience to sanitary laws are usually enforced against owners or occupiers and the sub-tenants or lodgers go scot-free. But much of the ill-health and disease in slums is directly traceable not to the neglect or default of the landlords but to the personal defaults of the poor who dwell in them. Vicious and drunken habits and disregard of personal cleanliness are powerful factors in the lowering of public health in poor districts, factors with which it is difficult, if not impossible, to deal by legislation. The only way to cope with personal neglect of matters affecting health will be by education of such people, or, if they are hopeless, by the education of their children in the principles of hygiene, so as to make its practice by future generations instinctive or habitual." There are bad landlords and shameless property owners, but it must not be forgotten that there is a class of tenants who would make a modern hospital, equipped with all the latest sanitary conveniences, a den of fever within three months if they were allowed to live in it in their own way. This is all the harder fortune upon the landlord seeing that in towns the requirements of modern building rules and sanitary laws are having a deterrent effect on private enterprise in building, while the task of ensuring proper housing is passing from individuals to municipalities. This reminds us that Lord STAMFORD did not happen to touch upon the subject of private slaughter-houses in his summary of the hygienic developments of to-day and we feel that these places constitute a menace to the public health of the country which respect for private property ought not unduly to protect. Matters have improved greatly in London compared with what they were 50 years ago, but there are still far too many private slaughter-houses. In the county of London at the present time there are 361, though this is some 300 less than in 1891. The London County Council is doing good work in reducing the number of these abominations, but the corporation of the City of London lags behind. Aldgate High-street is still disfigured by six or more slaughter-houses of the most insanitary description and although a few years ago there was a rumour that they were to be done away with they still remain to be a danger to health, a cruelty to animals, and a sight for passers by. Nearly 400 years ago Sir THOMAS MORE wrote in "Utopia" concerning the meat to be sold in the markets of that town:—

"But first the fylthynes and ordure therof is clene washed away in the rennynge river without the cytie in places appointed mete for the same purpose. From thence the beastes be brought in kylld and cleane washed by the handes of theire bondmen. For they permit not theire frie citezens to accustome themselves to the killing of beastes, through the use whereof they thinke, clemencye the genteleste affection of our nature by lytle and lytle to decaye and peryshe. Neither they suffer anye thinge that is fylthye, lothesome or unclenlye, to be brought into the cytie, lest the ayre by the stenche therof infected and corrupte, should cause pestilente diseases."

"Utopian" is too often used nowadays as a synonym for "impossible," but we most earnestly urge upon all municipal authorities the necessity of ridding the communities for whose welfare they are responsible of private slaughter-houses.

As regards factory legislation, Lord STAMFORD said that at the Congress last year an opinion was registered to the effect that file-cutting should be scheduled as a dangerous trade and he continued: "I have the gratification of being able to inform you that the Home Secretary has recently scheduled this trade as 'dangerous' by virtue of Section 82 of the Factory and Workshops Consolidation Act, 1901, and that regulations for inforcing cleanliness and ventilation in the shops and sheds where this industry is carried on are

now being framed." All classes of the community should be thankful to the Sanitary Institute and to practical philanthropists, both in and out of Parliament, for watching in this way over the safety and health of our operatives. It behoves the whole nation to see that old conditions do not recur in our factories through any ill-drafting of an Act or any supineness of an authority. It is of the utmost national importance that no person wherever it can be avoided should be employed under conditions inimical to physical health or to social health. The one is in direct relation with the other, for the noxious trade breeds noxious citizens unless it is jealously watched in its operations, while upon the welfare of the poor depends the welfare of the country.

The Treatment of Epileptics in Industrial Colonies.

THE opening of the Epileptic Colony at Ewell, Surrey, on July 1st, by Princess LOUISE (Duchess of FIFE) and the Duke of FIFE, K.T., Lord Lieutenant of the County of London, marks a new era in the development of rate-supported institutions for the epileptic insane of the metropolis under the care of the London County Council. It is only within the last decade of the nineteenth century that the epileptic has received special recognition as a fit subject for State-aided or rate-supported care and treatment. In the United States, since 1890, when the Ohio Hospital for Epileptics was founded, numerous "farm colonies" for epileptics have sprung up, of which the most notable is the Craig Colony at Sonyea, New York State. This institution, which is a model of its kind, has provided accommodation for 400 patients and is already undergoing extension to provide for a total of 600 patients. The system of housing was that of detached "cottages" spread over large cultivated grounds and under medical direction, while the scheme of education and industrial training for the inmates included reading, writing, and kindergarten work for the younger patients, and carpentry, cabinet-making, repairing, and farming for the others. In 1894 the farm colony for epileptics at Chalfont St. Peter, Bucks, was opened by the National Society for the Employment of Epileptics. Subsequently another epileptic colony was started at Chelford, in Cheshire. The foundation and opening of the new colony at Ewell mark the latest step in the same direction and indicate clearly the fact that local authorities and philanthropic bodies have realised quite effectually the need for progress and advancement in the classification and care of the epileptic and the feeble-minded of the metropolis.

The growth of medical knowledge in the past decade as regards the classification, housing, and treatment of the insane, the idiot, and the imbecile, of feeble-minded and "defective" children, and of the epileptic furnishes a striking illustration of the dependence of practical progress upon the advancement of scientific knowledge. Chronic and incurable cases of insanity tend more and more to be accommodated in large asylums or "custodial" institutions suitable for the purpose and capable of being managed at small cost. Special asylums or "hospitals" for acute and curable cases of mental disease are also being erected in various parts of the United Kingdom to serve as hospitals in the most modern sense, and at the same time as centres for research into the cause and treatment of insanity. Special "schools" and institutions have come into existence in order to afford education and training for feeble-minded and defective (non-epileptic) children who do not come within the scope and jurisdiction of the ordinary board schools. Custodial institutions or asylums for the care of uneducable idiots and imbeciles on a large but economical scale exist at Darenth, Leavesden, Caterham, and other places in or near the metropolis. The same principle of classification on a medico-economic basis has been carried to its logical conclusion in the case of the epileptic with excellent results. The term "epileptic" comprises various grades and forms of mental defect and disorder from the slightest to the most grave. There are sane epileptics, epileptic idiots, and epileptic imbeciles of low, medium, and high grade; there are epileptics with insane delusions and dangerous criminal instincts, and finally there are epileptics in whom the disease is slight and occurs only after adolescence is reached. Epileptic idiots and imbeciles of the lower grade are unsuitable for life on a farm colony. They are uneducable and unproductive and owing to the serious and incapacitating nature of their infirmity they require and receive the provision of custodial institutions. The epileptic imbecile of higher grade, the feeble-minded epileptic, and the epileptic who, though insane, is comparatively free from dangerous delusions and criminal instincts are suitable cases for farming and industrial colonies. Many of them are educable and capable of manual and industrial training and could with proper and inexpensive supervision be made to a great extent self-supporting, whereas if allowed to remain in the world at large they would not only starve, as their labour has too little market value, but they would tend to deteriorate physically and mentally, to perpetuate vice and crime, and to propagate a bad progeny. It is believed that about 33 per cent. of the epileptics in the London County Asylums would benefit under the system of treatment in a farm colony and the working of this part of the scheme, which consists in a transfer of such epileptics to the new colony at Ewell, will be watched with interest.

The epileptic colony at Ewell, which comprises a central administrative block and eight detached "villas," is situated 200 feet above the sea-level on an estate of 112 acres of land adapted for the purposes of a farm colony. It is capable of accommodating 330 epileptic patients. It differs in some respects from the Craig Colony, New York, and from that at Chalfont St. Peter, Bucks. The second and third of these institutions only receive epileptic patients who are comparatively sane and free from obvious evidence of cerebral paralysis. The conditions of open-air life, occupation, and treatment would otherwise appear to be much the same in the three institutions, and therefore the transfer of 330 epileptics mainly from existing asylums of the metropolis into the new colony must be regarded as indicating a view on the part of the administrative and medical authorities concerned that even with this class of inmates much improvement in mind and body, and a degree of educability in industrial training sufficient to make the inmates who work in the colony in a large measure self-supporting, are to be hoped

for. The eight villas in Ewell colony will each accommodate 38 patients and will be in charge of resident married attendants and their wives. A general view of the colony is given in an illustration which will be found on p. 108. Ample open-air walks and seats are provided; the verandahs and spreading porches to the villas are important features favouring life in the open. The lighting is by electricity throughout, telephones connect all the buildings, and an electrical fire-alarm places the villas and administrative centre in communication. The cost of the buildings, including fixtures and equipment, is estimated at £98,000, which gives an average cost per bed, exclusive of the cost of land, of £300. As regards the cost of maintenance of such an institution, the figures of the Craig Colony and other colonies which should furnish a close parallel show an average annual cost of from £35 to £40 per patient, and Dr. WILLIAM SPRATLING, the superintendent of the Craig Colony, states that in a large institution it need not exceed from £20 to £25 per head per annum. Dr. C. HUBERT BOND, late senior assistant medical officer at the Bexley Heath Asylum, is the medical superintendent of the institution at Ewell. The new colony starts into life under happy auspices and under liberal and enlightened administration should prove a success in both a medical and a philanthropic sense.

The Report of the Medical Officer to the London School Board.

THE first annual report of the medical officer to the London School Board has just been published and although it only covers a comparatively short period of time—namely, from the time of the appointment of Dr. J. KERR, the present medical officer, up to March 25th of this year—it must be regarded as a document of the greatest interest and as one representing a vast amount of unostentatious labour. The present report deals for the most part with the general organisation of the department and with a sketch of the main lines to be followed in the conduct of its immediate duties. The administration of a medical department which is responsible for the health of some half-million of children is no small matter, and if the whole of the past year had been occupied in organisation alone there could have been no just cause for complaint. The report shows, however, that real and genuine work has been done by a machine which is already in working order and it is impossible after reading the very condensed contents of some 25 pages to come to any other conclusion than that the responsibilities of the School Board's medical officer are almost more than one man can be expected to take upon his shoulders. For the physical health of the half-million units under his charge represents the prosperity and welfare of the heart of the empire. The machinery of this department will be of a more complicated and unmanageable character than was originally expected and it is clear that the staff will have in the near future to be largely augmented. The mere training of the teachers in the application of the recommendations made by the medical authorities requires a department to itself and the report before us very clearly indicates the importance of the intelligent coöperation of the teachers in obtaining practical results from the many suggested reforms in the sanitary and hygienic administration of metropolitan schools. As regards the physical development of the children the report impresses on us the desirability of obtaining, by means of a large number of anthropometrical measurements, the mean or average development of London school children. It is clear that there should be some such standard for purposes of comparison, although the work of obtaining the necessarily large number of measurements must extend over a considerable number of years; in fact, over one complete school period of about ten years.

The moral and educational influence of personal cleanliness is no small factor in the maintenance of discipline in schools; it is impossible, however, for children in London to keep themselves even comparatively clean without due facilities for washing. Reading between the lines of Dr. KERR'S report we suspect that these facilities in the metropolitan board schools are very inadequate. At least, if this is not so it is difficult to understand why one towel per week for an average attendance of 166 should be all the drying accommodation provided for the children who are expected to present themselves with clean hands and clean faces. Towels are things of which there should be an ample allowance or they may easily prove a means of spreading infectious disease. The portions of the report which deal with the spread of infectious diseases are particularly interesting and instructive, since they may be taken as foreshadowing the future policy of the Board of Education in combating outbreaks of such diseases as ringworm, contagious conjunctivitis, measles, scarlet fever, and diphtheria. Although, perhaps, owing to the comparatively short experience of the present administration, it may not be safe to accept entirely all the deductions which are made in this report with regard to the causes and spread of epidemic diseases among school children, nevertheless the evidence elicited by the investigations of the medical staff proves that practical results may follow, and have followed, the kind of inquiries which have so far been attempted. Moreover, one or two of the investigations prove that there is no lack of energy and watchfulness on the part of Dr. KERR'S staff. In connexion with the prevention of ringworm it is pointed out that systematic inspection by specially appointed nurses is sufficient to detect all the cases which are likely to occur; anomalous cases can be referred to the medical staff for detailed examination. A doubt is expressed in the report with regard to the contagious character of ordinary cases of "blight" for which many children at the present time are excluded by the teachers. To discriminate between infectious and non-infectious cases is clearly one of the many duties which will devolve on the already overworked ophthalmic surgeons who have recently been appointed to assist the medical officer.

With regard to the prophylactic measures recommended for the prevention of measles it is suggested in the report that the amount of "inflammable material," that is to say, the number of children who have not been already infected, should guide the judgment of the medical officer in deciding whether to close any particular school or to allow it to remain open. To assist the medical officer in determining the amount of "inflammable material" present at any particular time a special system of notification has been introduced which is now on trial. The difficulty of dealing

effectually with outbreaks of diphtheria is well exemplified in the case of a school at Isleworth, at which, according to the report, there was a combined epidemic of follicular tonsillitis and genuine diphtheria. After careful inquiry it was discovered that the spread of the diphtheria was due to "carrier cases"—that is to say, to children who had the specific bacteria present in their throats without any outward manifestation of the disease; when the "carrier cases" were isolated the epidemic ceased. It is suggested that in view of this evidence a bacterial examination on a large scale should be made whenever an outbreak of infective sore-throat makes it appearance in any of the Board's schools. The report contains special reference to the general causes which influence nutrition, hearing, vision, and physical development, to the measures which have been already taken to safeguard the interests of the children in these respects, and to certain suggested lines of inquiry and reform. The London School Board is to be congratulated on Dr. KERR'S first annual report; it is to be hoped, however, that it will recognise the utter impossibility of the present small staff carrying on effectually the many suggested measures of reform in the sanitary and hygienic administration of our public educational system.

Annotations.

"Ne quid nimis."

THE PHYSIQUE OF URBAN POPULATIONS.

ON July 6th the Earl of Meath rose in the House of Lords to draw the attention of His Majesty's Government to the report of the Royal Commission on Physical Training in Scotland and to the report of the Inspector-General of Recruiting for 1902 with reference to the deterioration among the class from which recruits are mostly drawn and to the degeneration among the urban classes. Lord Meath was followed by the Bishop of Ripon, who, in an eloquent speech, albeit crammed with figures, pleaded for inquiry to be made into the matter. He alluded as a side issue of importance to the decline in the birth-rate, not only at home but in the colonies. The Duke of Devonshire, in his reply, made an important announcement—namely, that though no Royal Commission such as was proposed by Lord Meath would be appointed at present, yet that the Secretary of State for War and the Home Secretary propose to confer with the medical profession, "through the councils of the Colleges of Physicians and Surgeons and to consult with them as to the best means of obtaining information, not so much as to the extent but—what is more important—as to the causes of this undoubted physical deficiency existing in some part of the population and as to the best means of remedying those deficiencies." The medical profession would be consulted firstly as to whether the appointment of a Royal Commission would be desirable and, if so, what should be the terms of reference and what should be its composition. We are glad to know that Parliament is seriously considering the matter but, as we have already said, we do not quite see what the medical profession can do. We discussed the question at some length[1] in commenting upon a paper by Major-General Sir Frederick Maurice which appeared in the *Contemporary Review* for January. For the question of a general improvement in the national health touches the body politic at nearly every point. If the urban dweller is to improve in physique he must have better food, better environment, and money to buy them. Questions of housing, of light and air, of reasonable amusement, and of freedom from grinding toil, are all important, while together with all this must be taken into consideration the need for restoring the rural population and so for depleting the towns of their surplus population. The medical profession in one way or another is always considering these points and we doubt whether when appealed to it will be able to narrow the terms of reference sufficiently to make it worth while for a Royal Commission to be appointed. In the meantime we would suggest that a more strict inforcement of such sanitary laws as we have, especially as regards smoke pollution, adulteration of food (including the sale of diseased and putrid meat), the removal of refuse, and the fulfilment of the Government's promise as to revaccination, will make a sound basis upon which to work while the wider matters are being debated.

[1] THE LANCET, Jan. 31st, p. 315.

THE ILLNESS OF LEO XIII.

THE brave struggle made by the nonagenarian Pope for a further spell of life has been watched with anxious sympathy by persons of all creeds among civilised nations. One of our Italian correspondents under date July 5th writes: "For the last four months the Holy Father has betrayed a progressive inability to withstand the physical exertion and the mental strain inseparable from his office and when, since Wednesday, July 1st, the sudden wave of heat that passed over Italy induced a lassitude approaching well-nigh to prostration in his general condition, the vigilance of his body-physician was redoubled owing to the supervention of symptoms of the gravest import. True, there were no indications of present mischief in the thoracic or abdominal centres, no fever, no hoarseness, no cough, no hint of the intestinal catarrh which, from time to time, his Holiness has suffered from, but there was persistent insomnia which, unless obviated, might prove the prelude to any attack on the point of least resistance. Early on the morning of July 3rd Dr. Lapponi had the satisfaction of finding that in response to treatment his august patient had had some hours of refreshing sleep and as there was still nothing to contra-indicate it the Pope's earnest desire to have a little airing in the Vatican Gardens was complied with. This was on Friday and the hour fixed for the 'passeggiata' was 8.30 A.M. With characteristic energy—I had almost said impetuosity—the Holy Father had descended half an hour before and while the carriage was getting ready took a few turns on foot in the shade. This brief promenade is blamed for the symptoms which followed shortly after the drive. The thunderstorm of the previous day had left traces of damp on the walk traversed by his Holiness before entering the carriage and on regaining his apartment he felt 'not so well.' In the afternoon he was restless and as the result of a consultation held by Dr. Lapponi with Professor Mazzoni, sergeant-surgeon to the Holy Father, there were found the unmistakable signs of pneumonia. Dr. Lapponi spent the night between the 3rd and 4th inst. in the Bibliotheca adjoining the pontifical dormitory and all yesterday was unremitting in his personal assistance, sustaining the strength with stimulants and concentrated restoratives. When Professor Mazzoni joined him in the course of the forenoon the Pope who, in spite of extreme debility, preserved the lucidity and alertness of his mind, remarked quite audibly, 'È la prima volta che non mi trovate in uno stato confortante' (It is the first time that you do not find me in comfortable ease). The night of the 4th was an extremely restless one and the Pope's prostration this morning was extreme. The inhalation of oxygen is now being practised, but the prognosis is the reverse of favourable. Cardinal Oreglia, the Camerlengo,

has been summoned—a step which has impressed the anxious public profoundly, as it is never taken except when the reigning Pope is moribund, with a view to convening the conclave for the election of his successor." On July 6th our correspondent wrote as follows: "The tenacious vitality of the Pontiff maintains the struggle for life as I close this letter. Every condition seems against him, and yet he lives. The pneumonia detected in the right lung has now involved the left; there was almost absolute insomnia between the night of the 5th and the 6th, but in the morning he felt somewhat relieved—the breathing less laborious, the cough slight, with a little mucous expectoration, the pulse not intermittent, the faculties perfectly clear. Dr. Lapponi saw him at frequent intervals during the night and was occasionally relieved by Dr. Salucci and Dr. Amici, who also are accommodated in a contiguous apartment. The patient responds with benefit to digitalis and camphor as administered from time to time and the diffusion of free oxygen copiously maintained in the sick-room undoubtedly contributes to the resisting power. At six o'clock this morning His Holiness expressed a wish to be moved from bed and to enjoy a change of posture in his armchair, and it was gratified. The bulletin issued at 9.30 A.M. terminates with these words: 'Le condizioni, pur non potendosi dire migliori, non sono peggiorati' (The conditions, while they cannot be called better, are not worse)." Since our correspondent's letter was written grave developments have taken place. Fluid was discovered in the pleura and on Tuesday afternoon, July 7th, paracentesis was performed by Professor Mazzoni. The operation was followed by a slight rally in strength, and as we go to press we learn that the illustrious and venerated patient still lives. He passed a fairly tranquil night on Tuesday and the general condition throughout Wednesday was to this extent satisfactory that no apparent retrogression took place. But the exhaustion, cardiac weakness, and defective renal action seem to leave little or no hope of any other issue than the sad one. A last telegram from our correspondent confirms this view, but lays stress upon the improvement in the power of taking nourishment. He states that Professor Grocco of Florence and Professor Cardarelli of Naples are to be called into consultation.

THE REMOVAL OF HOUSE REFUSE.

WE commented a few days ago in an adverse manner upon the attitude assumed by Sir James Ritchie when he was asked to convict a man of stealing house refuse out of the dustbins of the City of London. It was not, of course, suggested that the house refuse was of any pecuniary value to the City of London, or that the man was groping in the dustbins for any property worth stealing, but the feeling among all medical men must be that the contents of these refuse boxes ought not to be turned over and scattered about the streets. The following passage from the last report of the medical officer of health of the City of London deals with the question:—

> The Streets Committee having adjourned the consideration of the proposed by-laws for regulating the times of deposit of house refuse and the nature of the receptacles to be used, made under Section 4 of the City of London (Public Health) Act, 1902, your medical officer advised that active measures should be taken to abate at least one of the existing evils—namely, the filthy and objectionable practice in vogue of certain persons sorting over the receptacles as they stand on the pavement and selecting such materials as they are able to dispose of at a profit—viz., paper, string, bones cinders, &c.
>
> These persons naturally take no heed as to any nuisance they may cause so long as they obtain the materials they desire, and in turning over the contents of the dustbins a large proportion is inevitably spilled upon the ground. This practice should be put an end to in the interest of the public health.
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> The City Sewers Act, 1848, Section 83, enacts: "That the dirt, dust, nightsoil, and filth by this Act authorised to be collected from the several streets, privies, sewers and cesspools within the City, and all the dust, ashes, and rubbish so authorised to be collected, taken and carried away from all and every of the houses or elsewhere within the City shall be the property of the Commissioners and are hereby vested in them."
>
> The Public Health (London) Act, 1891, Section 32, enacts that: "All street refuse and house refuse collected by or on behalf of a sanitary authority shall be the property of that authority, &c.," and Section 34 (2): "Save as aforesaid—i.e., on default of sanitary authority—if any person other than the sanitary authority or their contractors or servants receives, carries away, or collects any house refuse, or street refuse, from any premises or street, such person shall be liable to a fine not exceeding five pounds."
>
> Although these provisions were originally intended to protect the interests of the authority at a time when the refuse had a definite commercial value and could be disposed of at a considerable profit, which was then applied in reduction of the rates, instead of being an actual loss as at present, they clearly are in being, and can be used on sanitary grounds.
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> Since the middle of last month a number of streets in which this nuisance obtains have been under observation of one of my staff and no less than 56 persons have been detected in the act of turning over the contents of dust receptacles previous to collection by the dustmen.
>
> By the advice of the City Solicitor these persons have been warned that a repetition of the offence will result in their prosecution.
>
> In two instances proceedings were instituted, the offenders being given into custody and charged with "stealing dust, ashes and rubbish, the property of the corporation." In one case a fine of 5s. or three days' imprisonment was imposed and the other was dismissed with a caution.
>
> Several other persons have been charged with a similar offence at the instance of the superintendent of cleansing.
>
> It should be mentioned that the large majority of those who are in the habit of picking over dust receptacles in the City reside in other districts. This to some extent aggravates the offence and there is little doubt that the evil will continue until more of these offenders are punished.

We have received several communications from correspondents saying that they have seen loafers and unfortunates turning over the dustbins in various parts of London and scattering filth on the pavement in the process. The practice ought to be stopped. We are sure that the inhabitants and ratepayers of the City of London must hold the same view in the matter as their medical officer of health, and will share our astonishment at Sir James Ritchie's view that to object to this dissemination of garbage in the public street is to display "sanitary madness."

HAMPSTEAD HEATH EXTENSION.

Hampstead Heath, owing to the extension of the tube railway to Hendon, is in danger of losing its most beautiful view and of having its wildest and most attractive part converted into a sand heap. To obviate these dangers a very influential committee has been formed (of which Mr. Shaw-Lefevre is chairman) to acquire 80 acres of land adjoining the west heath which will prevent the otherwise inevitable building of small houses and streets up to the edge of the heath, thereby saving the beautiful view from the "Spaniards." This addition (known as Wylde's farm) being adjacent to the tube railway station would afford a means of scattering the many thousands of visitors who will be brought to this point and who otherwise would speedily destroy every vestige of vegetation over a considerable area. Such destruction has been already experienced in the neighbourhood of the present Hampstead Heath station where the ground has been inclosed by fences. The heath in the vicinity of the tube station consists of broken sand-hills covered with clumps of gorse and thick coarse grass and its wild character would be altogether destroyed by being inclosed. Much of the proposed extension is admirably fitted for playing fields and would be a great boon to many of the additional thousands who will now visit the heath. The tube railway will enable persons residing in almost every part of London to get to the heath easily, cheaply, and speedily, while the building land now rendered available may accommodate a local population of many thousands. The demands on the heath will therefore be enormously increased and it has to be remembered that even with the proposed addition it is not nearly so large as Hyde Park and Kensington Gardens. The present opportunity is almost the last possible chance of adding to the heath which in a few years will be built in on all sides. It is to be hoped, therefore, that this opportunity of extending the most beautiful and, by its elevation, the most healthful of London's lungs will not be lost and that the prescience of the committee will be liberally supported by the public. The land is to be bought on favourable terms for £48,000 and within a few days

several thousand pounds have been subscribed, including a donation of £1000 from Lord Rothschild.

THE GORDON-BENNETT CUP.

THE fourth motor-car race for the trophy presented by Mr. James Gordon-Bennett has been brought to a conclusion without loss of life or, indeed, serious injury to anyone and those connected with the promotion and conduct of the contest deserve some measure of congratulation for a success consisting in the avoidance of disaster. At the same time many predict that the recent contest in Ireland will be the last of its kind, at least so far as the United Kingdom, Germany, and France are concerned, and all sensible persons will regard the probable discontinuance of such exhibitions with satisfaction. The wholesale horrors of the Paris-Madrid contest were fresh upon the minds of all who witnessed, or took part in, the race on July 2nd and if Parliament had been asked to sanction a road race in Ireland after, instead of before, the experience of our continental neighbours there can be little doubt of what the answer would have been. The necessary Act was passed, however, and has had no serious result, but the apprehension with which the Irish race was regarded, the extreme precautions taken, and the expressions of relief when it was over have served to accentuate the danger, not only of motor-car racing, but also of all driving at high rates of speed. As a matter of fact the risk attending motor-cars moving at speeds far exceeding the legal limit upon highways has grown to be more fully realised during the past few months than it has been in previous seasons, and it is not easy to see how those engaged in the motor-car industry can desire in their own interests to hold exhibitions such as the one which has just taken place. The public has shown considerable interest in motor-cars during the past few years, and the medical profession, more almost than any other, has watched their development keenly, for the medical man in his practice or in the exercise of those appointments which necessitate his constant and rapid movement from place to place, is naturally eager for a machine which, at about the same cost, can be trusted to take him farther, more rapidly, and not less safely in the course of the day than a horse or horses. To the medical man and to those members of the public whose needs correspond with his the race in Ireland means little or nothing in favour of motor-cars if it does not actually discourage their use. It affords evidence of their claim to speed, but this was established already and the marvellous speed exhibited by racing cars is not desired by the ordinary purchaser who requires them either for pleasure or for business. The pace of cars which go far slower than the Mercèdes of M. Jenatzy or the Panhard of the Chevalier De Knyff has been shown on other occasions to be a source of peril both to those occupying them and to human beings and animals using the road, and the race in Ireland has not proved anything to the contrary. The cars in the race for the Gordon-Bennett Cup were driven at a terrific rate, but they were guided by men picked from among experts and even in such hands there were accidents which good fortune rather than skill prevented from being fatal to the drivers, while the safety of the public was insured at enormous expense by a huge body of military and police. The trust of the public in the motor-car as a piece of machinery to be relied upon as such gains still less by the race. Allowing again for the excessive speed we find that cars built for the purpose for which they were used without regard for expense and driven with the greatest possible skill over specially prepared roads were the victims of defects and accidents which affected almost every part of their construction and which put seven out of the 12 starters *hors de combat* and only allowed two out of the remaining five to finish in a more or less dilapidated condition. To make the deduction that vehicles for ordinary traffic would fail in anything like the same proportion after a day's work would, of course, be unfair, and we wish only to point out that races such as the one under discussion can do nothing to establish the trustworthy character of the motor-car or to recommend its use to the great buying public to whom a trade must appeal if it desires to flourish upon a large scale. For the public the motor-car remains for the present a somewhat uncertain and not inexpensive aid to locomotion which will serve its owner best if he has a taste for mechanics and time in which to master its construction and to pay attention to its maintenance. The improvements most to be desired are those which will make it cheaper, simpler, and less liable to break down, and racing leads to none of these. At the same time the Gordon-Bennett race has been a fine example of an international contest conducted in a spirit of sportsmanlike emulation and organised with success in difficult circumstances. Our foreign competitors have received a hearty welcome and the Germans have won a victory which no one grudges them; indeed, the performances of the winner and of those who struggled to beat him have resulted in a fine display of skill, nerve, and physical endurance. The conduct of the spectators also is a matter for considerable congratulation; they were well protected no doubt, but they did not show any tendency to the foolish recklessness exhibited by those who in the Paris-Madrid contest contributed so much to the disasters of the day. Certainly the people of the district have deserved whatever profit the influx of visitors may have brought them, although we may not wish them any repetition of their unusual experience.

PRESIDENT LOUBET'S VISIT.

THE welcome given by the King, the capital, and the country at large to President Loubet has made a very favourable impression in France and has supplied quidnuncs of the continental press with material for an enormous quantity of stupid supposition. The reception of President Loubet in the streets of London was a perfectly hearty and simple acknowledgment of our national pleasure at seeing among us the brave, honest, simple gentleman who is the titular ruler of France. The political predetermination with which our King and certain of our Cabinet are being credited have, for the most part of course, no existence; but if all the journalistic guessing were accurate it would not alter the fact that the popular welcome given to President Loubet was spontaneous and free from political *arrière pensée*—a recognition of the many loveable qualities of the French nation and of the sterling worth of the President. One part of President Loubet's crowded little programme had a distinctly medical bearing. A little after nine o'clock on the morning of July 7th he visited the French Hospital and Dispensary in Shaftesbury-avenue. He was received by the senior physician, Dr. A. Vintras, who conducted him to the council-room, where the members of the committee of management and the medical staff awaited his arrival. At the right side of the President stood Mr. Edmund Owen, the consulting and chief surgeon of the hospital and with him were Dr. G. Ogilvie, Dr. G. C. L. Vintras, Dr. H. Dardenne, Mr. H. de Méric, Mr. H. Davis, Mr. C. Greene, and Mr. D. Thomson. The proceedings began with an address of welcome to the President read by Dr. A. Vintras. The President, in reply, said that in coming to the French Hospital he was discharging one of the pleasantest duties that had fallen to his lot. He congratulated them on the great charity which they maintained in a foreign land which was most friendly to France. The institution alleviated suffering which was intensified

by exile and it was helped by medical men with generous hearts and of high attainments who were British subjects. The President then turned to Mr. Edmund Owen and with a few words of hearty congratulation pinned on his breast the Order of the Chevalier of the Legion of Honour. Mr. Owen seemed somewhat astonished at the honour which he received and his acknowledgment was inaudible to most of those present. After the members of the medical staff had been introduced to the President a tour was made of the wards of the hospital.

THE FIFTH INTERNATIONAL CONGRESS OF DERMATOLOGY.

THE Fifth International Congress of Dermatology will be held in Berlin from Sept. 13th to 17th, 1904, under the presidency of Professor Lesser. The subjects chosen for debate are: (1) the Syphilitic Affections of the Circulatory Apparatus; (2) the Skin Affections in Errors of Metabolism; and (3) Epitheliomata and their Treatment. The general secretary is Dr. O. Rosenthal, Berlin, W., Potsdamerstrasse, 121G. The secretary for Great Britain is Dr. A. Whitfield, 21, Bentinck-street, Manchester-square, London, W.

THE VENTILATION OF RAILWAY CARRIAGES.

THE fashion of making long unbroken journeys is becoming one widely adopted among our English railway companies and the London and North-Western has, temporarily no doubt, established a record in this respect by running a train from Euston to Carlisle without a stop. Even at express speed the time taken was six hours, during which period the passengers were shut up in a limited space, for even corridor carriages exhibit little improvement upon the older arrangement as regards this feature owing to their subdivision by partitions. Of late years much progress has been made in the fitting up of trains with sanitary conveniences, but in one important branch practically nothing has been done. We refer to the matter of ventilation. For health it is desirable to have for each adult a supply of from 900 to 1000 cubic feet of fresh air per hour, but in the case of trains there are obvious difficulties in the way of reaching this end. If the journey is of short duration and more especially if the carriage doors are frequently opened at intermediate stations, no ill effects are likely to ensue, but when several hours have to be spent in the small space left when the compartment has received its full complement of passengers and their luggage the conditions are very different. Every air inlet has probably been carefully closed against the draughts generated by the high speed of the train and the accumulation of carbonic acid and the associated vitiation of the air cause the traveller to reach his destination obviously suffering from their effects. Numerous investigations have shown that the air in railway carriages is often very impure; thus 14 parts of carbonic acid per 10,000 instead of the normal four have several times been observed, though things are rarely so bad as in the case of a train from St. Petersburg to Moscow, where it is recorded carbonic acid amounting to 94 parts per 10,000 was found. As the result of some experiments made by him Wolffhugel concluded that the air of a compartment ought to be renewed 38 times per hour. In this country the ventilation of railway carriages is effected by leakages round doors and windows and by the simple apparatus, as simple as it is inefficient, placed in the door or roof. Abroad sundry less primitive devices are adopted. On one of the French lines a "manche à vent" on the principle of the ventilating tubes used on board ship is employed, the air forced in by the motion of the train being passed through water in order to purify it. In Germany Schmidt's apparatus is used and though it has been freely criticised it probably has some value. Some of the American cars are fitted with a double roof, the intervening space forming an air reservoir which is connected with the outer air by protected orifices at the front and at the back. Air can be either forced in or drawn out of the car and its temperature can be regulated according to the season. It might be rather difficult to apply such an arrangement to English railway carriages with their distinct compartments, but the problem of supplying a more efficient system of ventilation ought not to be beyond the ingenuity of our railway engineers.

THE "CORKING" OF WINE.

THE common interpretation of a "corked" wine is that it has absorbed bad qualities from the cork or that the cork is defective and has permitted the access of air to the wine. Neither explanation is entirely satisfactory, for a "corked" wine is not necessarily sour and in the majority of cases the cork so far as the eye can see is sound. There can be, however, no mistaking the change for the worse which a "corked" wine shows; it develops a strange odour and a bitter after-taste which finally becomes so strong as to render the wine quite unpalatable and undrinkable and probably unwholesome. Red wines are much more liable to the "disease" than white wines and amongst white wines champagne seems to be the most susceptible to attack. Sherry is never "corked," probably because it is a relatively strong wine and contains aromatics with antiseptic properties, and hock, moselle, chablis, and sauterne are rarely found to be "corked." Even good brandy is occasionally found to be "corked," or at least to possess a "corky" flavour, which is probably due to a different phenomenon altogether and is simply the effect of the spirit on a bad cork. For this reason brandy should never be stored in contact with a cork but should be kept upright in a dry place and not in a damp cellar. From the fact of the high alcoholic strength of brandy it is not probable that the "corky" taste is due to a micro-organism; not infrequently the caramel used for colouring purposes is at fault. The "corking" of wine probably has its origin in the invasion of a specific microbe—it may be from the cork or more likely it is present in an undeveloped state in the wine before bottling. It is doubtful whether the cork has anything to do with the change unless it happens to be infected with the specific organism which attacks the wine and spoils it. This organism appears to thrive on tannin, for as the deterioration of the wine proceeds the tannin is consumed. Red wines contain more tannin than do white wines and it is a significant fact that tannin is a constituent of cork and so it is that cork blackens when it is in contact with salts of iron.

PNEUMOTHORAX FROM EXPLORATORY PUNCTURE OF THE PLEURA.

PNEUMOTHORAX from exploratory puncture of a pleura containing no fluid is an exceedingly rare accident though pneumothorax from paracentesis thoracis is well known. In the *Gazette Hebdomadaire des Sciences Médicales de Bordeaux* of June 21st, Professor Mongour has published the following case. A man, aged 46 years, addicted to alcohol, was admitted to hospital on Jan. 24th with symptoms of left pleurisy. Puncture yielded yellowish fluid. On the following day the right chest showed posteriorly slight dulness (*submatité*) and diminished vesicular murmur and vocal fremitus. Some doubts were felt as to the existence of a small effusion on the right side. To remove them exploration was performed with a No. 2 needle of Dieulafoy's aspirator. No fluid was obtained, but scarcely was the needle withdrawn when the patient was seized with an attack of suffocation. In a few minutes he became blue and involuntary micturition took place.

Inhalation of oxygen and artificial respiration were unsuccessful. The face became covered with a cold sweat. To relieve him paracentesis was performed on the left side and 400 grammes of fluid were removed, but without apparent benefit. It appeared to Professor Mongour that such a sudden and severe attack of dyspnœa could be due only to embolism or pneumothorax. For the former nothing could be done; he therefore made a supreme effort to relieve the latter. Without taking time to percuss he plunged a large trocar into the spot where he had explored with the needle. On withdrawing the trocar air escaped through the cannula with a whistle. Immediately the patient took long inspirations and in a few seconds he was resuscitated. With Dieulafoy's aspirator more air was removed until the pleural cavity was emptied. On the next day friction sounds were heard at the site of the double puncture. The patient died from pulmonary tuberculosis on May 3rd. At the necropsy numerous cavities were found in both apices. The right pleura contained no fluid and showed no adhesions. The explanation of the accident is rendered the more difficult by the fact that a small incision may be made into the pleural cavity without the parietal and visceral pleuræ becoming separated. Professor Mongour thinks that the needle must have pushed the lung away from the parietal pleura and that into the cavity so formed air entered during expiration and pneumothorax was produced. Possibly at the point of puncture there were subpleural tubercles which would favour the production of the accident. Professor Mongour does not consider that the entry of air into the pleural cavity was necessarily due to puncture of the lung. The importance of his paper lies chiefly in the fact that it prepares the practitioner for prompt intervention, which no doubt in this case saved the patient from instant death. Otherwise the practitioner might easily be so embarrassed by the sudden catastrophe as to fail to recognise its nature and so might lose the opportunity of saving life by relieving the pneumothorax.

THE PATHOLOGY OF "CAISSON SICKNESS."

AFTER working in compressed air men may exhibit a number of symptoms known as "compressed air sickness" or "caisson sickness." Dr. F. B. Wainwright, medical officer of the Baker-street and Waterloo Railway Tunnel Works, very fully described the condition in our columns some time ago.[1] During the period from May 23rd to Oct. 28th, 1900, 47 cases occurred among 120 men employed in constructing the tunnel. The pathology of caisson sickness is disputed. Some experiments performed by Dr. Leonard E. Hill and Dr. J. J. R. Macleod, which are published in the *London Hospital Gazette* for April, appear to settle the question. By taking blood-pressure tracings in pressure chambers with the animal, manometer, and drum shut up together they showed that compressed air had no mechanical effect on the circulation. The pressure is transmitted equally by the fluids of the body to all parts. They also constructed a small chamber with thick glass windows and by the aid of the microscope and arc light observed the circulation in the leg of the frog and the wing of the bat. The circulation proceeded normally even when the air pressure was suddenly raised to ten or more atmospheres. On rapid decompression the air absorbed by the blood is given off in bubbles which produce gas embolism. This is the cause of caisson sickness. On rapidly lowering the pressure in the chamber gas bubbles were seen to appear in the capillaries of the frog's web and by raising the pressure they were made to disappear and the circulation began again. As the air pressure is raised the amount of nitrogen and oxygen dissolved in the blood increases according to Dalton's law of partial pressures. But the blood does not become immediately saturated because the tissues and tissue juices also take up the air dissolved in the blood. The arterial blood becomes saturated in about one and a half hours. This explains why the longer a man works in compressed air the more liable he is to caisson sickness. At a pressure of seven atmospheres the blood contains 11 volumes per cent. of nitrogen instead of the normal 1·5 per cent. On sudden decompression every 100 cubic centimetres of blood will give off about ten cubic centimetres of nitrogen and the tissues will give off almost as much. It is not, therefore, surprising that animals are instantly killed by sudden decompression. The gas collects in the heart, froths, and stops the circulation. After sudden decompression of animals exposed for hours to compressed air surprising distension of the vessels and tissues with gas bubbles is observed. On the other hand, by slow decompression animals may be successfully brought out of seven atmospheres of pressure. Prolonged exposure to a pressure of seven atmospheres lessens the output of carbonic acid and lowers the temperature of the body, for compressed air is a much better conductor of heat than ordinary air. In consequence of oxygen poisoning there is a diminished output of carbonic acid. Acute congestion of the lungs (pneumonia) is produced by prolonged exposure to from seven to ten atmospheres of air and convulsions are quickly produced by exposure to three or four atmospheres of oxygen. Higher pressures of oxygen, such as from six to ten atmospheres, paralyse without convulsing and quickly produce death. Exposure to compressed air greatly diminishes the excretion of water. Ventilation of the chamber removes only a portion of the watery vapour contained in it and the air becomes saturated and a better conductor of heat than an ordinary atmosphere. Thus divers and caisson workers are exposed to cold in their work.

[1] THE LANCET, Dec. 22nd, 1900, p. 1792.

HIGH-POWER MICROSCOPY.

ON June 17th last Dr. Siedentopf gave at the monthly meeting of the Royal Microscopical Society a very interesting demonstration of the exhibition of extremely minute objects in a high-power microscope. He used for this purpose the "ultra-microscopical" particles of gold to be found disseminated through ruby glass and afforded the society what was certainly a very striking display. His method is an application to an instrument of high power and wide angle of what is known as "dark field" illumination. Those of our readers who are accustomed to work with objectives of low angle and moderate magnifying power will be perfectly familiar with the brilliant effect produced by stopping out the central part of the beam from the condenser and lighting the object with a hollow cone of rays from the marginal zones, which rays cross the stage at angles too obtuse to be caught and focussed by the objective in use. In that case the background and all such parts of the object as are simply transparent become invisible in the instrument because the transmitted light all falls outside the angle of the cone which the objective can grasp and utilise. But where such very oblique rays fall upon refracting or reflecting surfaces they are bent away from their original courses and may be deflected into the aperture of the objective, in which case they form an image which stands out in strong relief against the unilluminated background. For the successful use of this device it is of course necessary that the condenser should have a wider angle than the objective, since it has to supply the rays which pass into the objective only after deflection and in the ordinary course therefore it cannot be applied to objectives of the highest power which have an angular aperture as great as the optician can give them and equal therefore to the aperture of any condenser that can be made. Dr. Siedentopf meets this difficulty by introducing the illuminating beam from the

side instead of from below, and he uses a very powerful source of light so that even a very small body will reflect sufficient light to be visible in the dark field of the instrument. In this way he exhibits extremely minute particles and obtains the best results from objectives of the highest angle. He is sanguine about the application of his method of illumination to bacteriological work and exhibited a pathological specimen under very high magnifying power. But it did not at all appear that he had dealt successfully with the problem of producing a well-resolved image at the high amplification which he was using. His method of lighting, especially the contrivance by which he obtains an exquisitely thin stratum of illuminated tissue in the middle of the field, is very ingenious. For this purpose he focusses there the image of a slit such as the slit of a spectroscope arranged in a horizontal plane so that below and above the plane in which his objective is focussed there is an unilluminated region. Hence the object seen is not obscured by the luminous haze which would be created by unfocussed objects lying about the object in focus if the illuminating beam had any sensible thickness along the line of sight. This is a matter of very great importance, the effect of which was beautifully demonstrated to the eye by Dr. Siedentopf's experiments. But the necessity of thus hitting the focal point exactly by two sets of independent focal adjustments, one set made from the side and the other from above, involves the most formidable complexity in the mechanical appliances brought into use, so that at present it is much more evident that this new departure is admirably ingenious and highly curious than that it is in any special sense useful.

POISONING BY CARBON MONOXIDE GAS.

POISONING by carbon monoxide gas is rare in England in comparison with the number of cases of the same, both accidental and otherwise, which occur in France. In a recent Thèse de Paris (1903) Dr. H. Croizet states that of the three sources of poisoning by gases—viz., carbon monoxide, illuminating gas, and carbonic acid gas—the first is the most fruitful of accidents. Portal in 1775 had mentioned the paralyses and trophic disturbances due to carbon monoxide poisoning, but long before that Boerhaave had written "*vapor carbonum apoplexiam producit.*" Brouardel and Landouzy have recently shown that facial paralysis may follow carbon monoxide poisoning. Dr. Croizet states that paralyses, including paraplegia and anæsthesia, and delirium are the commonest results of such poisoning but that peripheral neuritis may also sometimes follow. The nervous tissues seem to be able to absorb carbon monoxide from the blood as shown by Lamie (1891) in experiments on dogs poisoned with this gas, since he was able to extract the gas the desanguinated brain. In all cases of neuritis following carbon monoxide poisoning, adds Dr. Croizet, the resulting paralysis is peripheral, strictly localised to certain nerves, and of a symmetrical distribution. The diseases which have to be differentiated in diagnosis from carbon monoxide paralyses are diphtheritic paralysis, rheumatic and malarial neuritis, alcoholic and mercurial poisoning, progressive muscular atrophy, and hysteria major. Benzene and bodies having a chemical composition analogous to benzene, such as oil of naphtha and terebinthin, produce symptoms of motor paresis, vertigo, and anæsthesia comparable to those caused by illuminating gas and carbon monoxide. Dr. Croizet has collected, largely from personal observation, the records of 13 cases of poisoning by carbon monoxide gas. He finds the prognosis to be good in cases where neuritis does not develop. In the event of the latter following within a few days of the poisoning the prognosis is about as unfavourable as in cases of alcoholic neuritis. As regards treatment the following procedures are recommended: first, fresh air to overcome the acute asphyxia of carbon monoxide poisoning; secondly, sulphur baths to be taken daily; thirdly, good food in abundance, the meals to be preceded by half a wineglassful of quinine wine to which have been added about ten minims of the tincture of nux vomica; and fourthly, the application of chloroform liniment with friction in cases of local neuralgia and commencing neuritis. If the affected area is very tender and painful a minute dose of morphia hypodermically injected will give sufficient relief to permit of the rubbing in of the liniment. Parts that are actually paralysed should be massaged and treated with galvanism daily while passive movements should be systematically practised. In rare cases where trophic disturbances such as herpes and a bullous condition occur after poisoning the affected parts should be dusted over with a powder composed of starch and zinc oxide.

COMPLIMENTARY DINNER TO MR. JONATHAN HUTCHINSON, F.R.S.

ON the seventy-fifth anniversary of his birthday a complimentary dinner is to be given to Mr. Jonathan Hutchinson by the members of the medical profession. Mr. Hutchinson's record for more than 50 years of scientific and clinical work is well known to all our readers. The work of a prolonged life has been directed unswervingly towards the scientific study of disease with results that have been practically useful in many directions and stimulative of further research in many other directions. We hope that a large number of the medical profession will join in the congenial duty of conferring the compliment upon Mr. Hutchinson of attending at his birthday dinner. Dr. Hugh Woods is acting as the honorary secretary of the dinner committee and requests that applications for dinner tickets shall be made to him at the London and Counties Medical Protection Society, 31, Craven-street, W.C. The dinner will be held at the Trocadéro Restaurant on Thursday, July 23rd, at 7 P.M., and the price of the dinner ticket, which will not include wine, will be 7*s.* 6*d.* Members of the medical profession will be allowed to bring guests. Sir H. Greenway Howse, President of the Royal College of Surgeons of England, will occupy the chair.

THE DISTRIBUTION OF PLAGUE.

AS regards the Cape Colony the medical officer of health states that for the week ending June 13th the condition of the various places mentioned below was as follows. At Port Elizabeth 3 cases of plague have been discovered during the week—namely, 1 native male on June 12th and 1 European male and 1 native male on June 13th. At the plague hospital 1 European female and 1 coloured male died during the week, and 1 European female was discharged recovered, leaving 12 cases under treatment. Plague-infected rats continued to be found in the town. At East London 2 cases of plague have been discovered during the week—namely, 1 native male on June 8th and 1 native female on June 12th. At the plague hospital 1 native male and 1 native female died during the week, and 1 coloured male was discharged recovered, leaving 5 cases under treatment. Plague-infected rats continued to be found in the town. At King William's Town no cases of plague have been discovered during the week. At the plague hospital 12 cases remain under treatment. Plague-infected rats continued to be found in the town. No case of plague and no plague-infected rats have been discovered during the week at Graaff-Reinet, Burghersdorp, or Queenstown. At Stockenstrom plague-infected rats have been discovered in the Cape police camp at Seymour. As regards Hong-Kong a telegram from the Governor received at the Colonial Office on July 1st states that for the week ending June 27th there were 54 cases of plague, 3 being in

Europeans, and 35 deaths from the disease. At a meeting of the Hong-Kong Sanitary Board held on June 4th reference was made to the discovery in the Western Market on May 31st, June 1st, 2nd, and 3rd, of a fowl, five ducks, a chicken, and a quail, all of which, it was ascertained, had died from plague. The birds had apparently been infected from some basement dwellings in the market and the President moved that Government should be asked that these basements should no longer be allowed to be used as dwellings. This was agreed to.

THE IRISH MEDICAL ASSOCIATION.

IN THE LANCET of June 27th, p. 1842, will be found an account of the annual meeting of the Irish Medical Association, which has made such progress during the past year that 23 new branches have been formed and which has a membership now of 781. The Irish Medical Association has been established "to protect and promote the interests of the medical profession," and is, as Dr. Leonard Kidd said in his presidential address, a defence association in the fullest interpretation of the term; indeed, it is at the present time supporting the members of the Poor-law medical service in Ireland in their praiseworthy efforts to have their just grievances redressed. The members at this annual meeting by a series of resolutions have formulated their demands, the chief of which are increased remuneration, superannuation as a right, and annual holidays as a right with payment of locum-tenents. These are the terms put forward and confirmed at the meeting and if the members of the profession remain true to one another we have no doubt that they will be granted. We thoroughly indorse the appeal of the President of this organisation when he asks for the support of his medical colleagues in England and Scotland.

THE TREATMENT OF LUNATICS.

AT Lambeth Police-court a female attendant at Peckham House Asylum was summoned recently under Section 322 of the Lunacy Act, 1890, for ill-treating a patient by striking her twice in the face. The assistant matron witnessed the assault and the defendant afterwards expressed her regret and stated that she struck the patient in a moment of irritation. For the defence it was urged that the attendant was in charge of the refractory ward, that the woman struck had given trouble during the night, and that in struggling to get a garment from her the attendant had "committed the technical assault complained of." In these circumstances the defending solicitor asked the court to impose a nominal penalty only. The learned magistrate, Mr. Hopkins, is reported in the *Standard* as having thereupon given his decision in these words: "There shall be the smallest penalty I have the power to inflict under the statute—a penalty of 40*s*." If the phrase used was intended to express an opinion that the matter was a trifling one and was to be punished as lightly as possible it must be pointed out that the section in question was framed for the protection of the helpless and irresponsible persons confined in asylums and that the uncommon course of fixing a minimum penalty was presumably adopted in order that all assaults committed on them should be treated as serious offences. It is true that the solicitor appearing for the Commissioners in Lunacy seems also to have applied the expression a "technical assault" to the acts of the defendant and that after the penalty had been imposed he did not ask for costs. It is not easy, however, to see how a blow, still less how two blows, struck admittedly in anger can be regarded as only a technical assault. The assistant matron, who did her duty in reporting the case, apparently took no such view and the Commissioners in Lunacy need hardly have taken it into a criminal court if they regarded it as trifling. It is possible, on the other hand, that the magistrate did not treat the matter quite as lightly as the words quoted would imply. If the assault was a first offence he could, under the Summary Jurisdiction Act, 1879, have reduced the penalty below the minimum expressly prescribed by the Lunacy Act, and he may have considered, taking everything into consideration, that a fine of 40*s*. exactly met the requirements of the case. However this may be, it is to be hoped that blows struck in the circumstances described will not be allowed to pass unpunished by those in authority in asylums and that they will not be regarded as unimportant because in particular instances no injury or other serious result is immediately traceable to them.

PRESENTATION TO PROFESSOR J. W. BYERS.

AT a meeting of the friends of Professor Byers, held in the town-hall, Belfast, on May 30th, the High Sheriff being in the chair, the following motion was unanimously adopted:—

That in the opinion of this meeting the present is an appropriate time for showing the high esteem in which Professor Byers is held by his many friends in Belfast and the North of Ireland.

It was agreed that the presentation should take the form of a portrait to be hung in the examination hall of Queen's College, Belfast, and that a replica should be presented to Mrs. Byers. Sir James Henderson, D.L. (chairman of the Municipal Technical Institute, Belfast), was appointed honorary treasurer, and Mr. Thomas Andrews, D.L., of Comber (chairman of the Down county council), the Rev. Professor W. Fod Martin, D.Lit. (chairman of the board of governors of Campbell College, Belfast), Professor Thomas Sinclair, M.D. R.U.I., F.R.C.S. Eng. (President of the Ulster Branch of the British Medical Association), and Mr. J. Theodore Richardson, J.P. (Lisburn), were appointed secretaries. A large and representative meeting of the subscribers was held on July 3rd in the council chamber of the town-hall, Belfast (the High Sheriff presiding), when it was announced that the movement was a great success and it was decided that an executive committee with full powers to complete all details of the presentation should be appointed as follows: the Right Hon. the Lord Mayor of Belfast (Sir D. Dixon, D.L., P.C.), the Right Hon. Thomas Sinclair, D.L., P.C. (Hopefield, Belfast), Sir James Henderson, D.L., the High Sheriff (Mr. Anderson, J.P.), Mr. Thomas Andrews, D.L., the Rev. Professor Martin, Professor Sinclair, Professor Peter Redfern, M.D. Lond., F.R.C.S. Eng., Mr. W. Crawford, J.P. (chairman of the board of management of the Royal Victoria Hospital, Belfast), Mr. J. Theodore Richardson, J.P., and the Rev. Dr. Hamilton (President of Queen's College, Belfast).

MEDICINE IN NEW GUINEA.

IN the current number of the journal of the Anthropological Institute Dr. C. G. Seligmann describes the medicine, surgery, and midwifery of the Sinaugolo, an inland people still in the stone age inhabiting the Rigo District of British New Guinea. Sorcery and magic play a considerable part in the treatment of disease, especially in such conditions as are rare or fatal, while taboos and ceremonial hedge the pregnant and parturient woman on all sides. Tatooing as a medicinal agent, to which apparently no magical value is attached, is in constant use, being most common over rheumatoid joints and chronically enlarged malarial spleens. Fractures are put up in rough splints; the joints above and below the injury are not immobilised. Ligatures are unknown, nor are wounds ever sutured. Children are thought to be conceived in the breasts and to pass subsequently to the abdomen. Dr. Seligmann suggests that this belief may be traced to the young of the wallaby, a much hunted animal, being found attached to the nipple where they are believed to have grown. Abortion brought

about by mechanical means is common and girls may have connexion before the catamenia are established, the moon being held responsible for the appearance of the latter. As we stated last week an expedition is just about to start for New Guinea fully equipped for ethnological research. Increased facilities for travel make these organised attempts to unravel primitive pathology possible, while who knows but that exploration of virgin soils may lead to discoveries that will illuminate some of the dark places of elaborate and established learning. Dr. Seligmann is the representative of the Cancer Research Committee upon the new expedition under Major W. Cooke Daniels. The thought that the secret of the origin and spread of malignant disease may be concealed in taboo ritual is a wild one, but it is a very fascinating one, and many things which have come to pass must once have seemed wilder. And at all events, in our present ignorance of the pathology of malignant disease all methods of investigation keenly undertaken by competent observers must work for good. If nothing new is found at east some apparent paths to knowledge will be followed up and exposed as blind alleys, while some old-established routes will be re-confirmed.

THE KING'S COLLEGE HOSPITAL LODGE OF FREEMASONS.

THE King's College Hospital Lodge of Freemasons, No. 2973, which has been founded in connexion with King's College Hospital, was consecrated at the Trocadéro Restaurant, Piccadilly-circus, London, W., on Thursday, July 2nd, by Sir Edward Letchworth, Grand Secretary, assisted by Dr. Clement Godson, P.G.D. ; Sir Alfred Cooper, F.R.C.S., P.G.D. ; the Rev. Sir Borradaile Savory, Bart., P.G. Chap. ; Mr. J. Fitzroy Tower, P. Dep. G.D.C. ; and Mr. Thomas Wakley, jun., P.G.D. The First Master of the lodge is Dr. Ernest W. White, P.G.R. (Kent), and the following are the other officers : A. Ernest Sansom, P.G.D., I.P.M. ; R. J. Maitland Coffin, P.A.G.D.C., S.W. ; William Turner, P.M., No. 200, J.W. ; Reginald T. H. Bodilly, P.M., No. 453, treasurer ; J. Frederick W. Silk, secretary ; Herbert A. H. McDougall, P.M., No. 1731, S.D. ; Sir Hugh R. Beevor, Bart, J.D. ; Leedham Fuller, I.G. ; Joseph Pollard, P.G.J.W. (Surrey), D.C. ; G. J. Eady, P.S.G.D. (Surrey) ; and F. H. Low, stewards. There was a large number of visitors, including his Excellency Sir F. Hodgson, Governor of Barbados ; Alderman and Sheriff Sir G. Truscott, and five of the Masters of the other hospital lodges and the whole proceedings passed off most successfully. King's College Hospital is the seventh of the large London hospitals having Masonic lodges attached to them and medical Freemasons will unite in wishing to the new lodge a similar measure of usefulness, success, and prosperity to that which has attended the lodges connected with St. Bartholomew's, St. Mary's, Middlesex, Charing Cross, the London, and St. Thomas's Hospitals. Freemasons connected with King's College Hospital will note that Dr. J. Frederick W. Silk is the secretary, from whom doubtless they can obtain further information.

Sir William Church, President of the Royal College of Physicians of London, will distribute the prizes in connexion with St. Bartholomew's Hospital and College in the great hall of the hospital on Wednesday, July 15th, at 4 P.M.

Mr. Edmund Owen, M.B. Lond., F.R.C.S. Eng., "chirurgien en chef" to the French Hospital, has had conferred upon him by the President of the French Republic the decoration of a Chevalier of the Legion of Honour.

THE members of the South-West London Medical Society will meet on Tuesday, July 14th, at 8.30 P.M., at the Bolingbroke Hospital, Wandsworth Common, when the annual Bolingbroke lecture will be delivered by Sir Victor Horsley, F.R.C.S., F.R.S., on the Cure of Hernia, with Special Reference to a New Operation for the Cure of Femoral Hernia.

THERE will be a special meeting of the General Medical Council on Wednesday next, July 15th, at 2 P.M., and the extraordinary session will probably extend through the following day or two days.

THE plan for the amalgamation of the Royal Orthopædic Hospital with the National Orthopædic Hospital has been approved at a special court of the governors of the former institution.

H.R.H. the Princess Louise (Duchess of Argyll), the Duke of Argyll, and Earl Roberts will pay an official visit of inspection to the Princess Louise Hospital, Alton, Hants, on July 16th.

The Earl of Rosebery will open three new pavilions at the Victoria Hospital for Consumption, Edinburgh, on Wednesday next, July 15th.

Mr. John Tweedy has been elected President of the Ophthalmological Society.

Looking Back.

FROM

THE LANCET, *SATURDAY*, JULY 9, 1825.

FROM

LECTURES

ON THE PRINCIPLES AND PRACTICE OF PHYSIC,

BY DR. ARMSTRONG.

Theatre of Anatomy, Webb Street.

THE following is an abstract of Dr. ARMSTRONG'S Lectures, comprehending his general view of the pathology and treatment of febrile disorders, and his management of convalescence.

All febrile disorders proceed from common or peculiar remote occasions. The common occasions are the ordinary agents of nature, which might be subdivided into depressants, stimulants, irritants, and interruptants, the meaning of which he formerly defined. The peculiar occasions are distinguished from the common ones by some special inherent property, and the principal of them are malaria, or marsh miasm, putrid animal or vegetable matter, general distemperature, of the atmosphere, and human contagions. All these various occasions, whether common or peculiar, produce three forms of fever, the congestive, the simple, and the inflammatory forms.

Dr. ARMSTRONG finally spoke of the difference between those fevers which arose from common and peculiar causes, pointing out that in the latter case they frequently had a sort of determinate duration, which practitioners should duly regard, but they make the treatment too active in the middle and advanced stages.

The Doctor advised his pupils to be diligent throughout their lives in noting the effects of remedies, and did not hesitate to say, that he learnt to apply them with more precision, endeavouring to make every day and year a useful commentary upon the fact. Among the nicer adaptation of means to ends, he mentioned the gradual and, at length, great improvements which he had thus been enabled to effect with respect to his own practice in the employment of bloodletting, aperients, calomel, and opium, and more particularly in that of the regimenal and mental management of the sick.

Having put them in possession of what he confidently regarded as correct principles of pathology and practice, as to all febrile affections, he could not refrain from once more cautioning them against those vague doctrines

of debility which were still advocated by some self-elected and elated confederates of old chartered and exclusive establishments, doctrines which were so entirely of the last century as to be utterly unworthy of this enlightened period—doctrines which were alike false in theory and fatal in practice; whereas the simple views which he had taken of the pathology of fever could be fully substantiated by a reference to symptoms and morbid anatomy, while the precise application of the few measures which he recommended in practice led to a success utterly unknown to those dogmatical and empirical advocates of the old system, some of whom, as in the time of SYDENHAM, still attempted to give a tone to the professional opinion of the British Metropolis in particular, though the time was now come when such attempts would be completely frustrated by the intelligence, simplicity, and ardour of the rising generation of medical men. He rejoiced that he was among the number of those who had raised their voices against prevailing errors, and it was matter of sincere pleasure to him that he had been heard and regarded by those to whom he had so strenuously and sincerely appealed in the cause of truth and humanity.

THE SERUM DEPARTMENT OF THE JENNER INSTITUTE OF PREVENTIVE MEDICINE.

ON Friday last, July 3rd, Lord Lister and the governing body of the Jenner Institute of Preventive Medicine invited a number of distinguished guests and others interested in the work of the institute to inspect the new laboratories and stables which have recently been acquired at Queensberry Lodge, Elstree, Herts. The visitors were taken down by special train from St. Pancras and driven from the station at Elstree to Queensberry Lodge, a distance of about two and a half miles, where they were received by Lord Lister and members of the governing body, among whom were Sir Michael Foster, K.C.B., Sir Henry Roscoe, and Surgeon-General Sir William R. Hooper, K.C.S.I. Among the guests were Lord Iveagh, to whose liberality the institute owes so much, Sir William S. Church, Bart., K.C.B., the Masters of the Grocers' Company and of the Apothecaries' Society, Surgeon-General Sir W. Wilson, K.C.B., Professor J. MacFadyean, and others.

On arrival the visitors were divided into three parties and placed under the guidance of Dr. G. Dean, the bacteriologist in charge, and the two assistant bacteriologists. The premises and animals were then carefully inspected and the various processes for the production of therapeutic sera were explained by those in charge of the parties. After the inspection the guests were entertained in a marquee erected in the charming old-fashioned garden which surrounds the original house and here light refreshments were provided. The weather was lovely and the arrangements which had been made were perfect, so that all who accepted the invitation of the governing body spent a very pleasant and profitable afternoon and were much impressed by the facilities provided for the production of the various curative sera and for original research.

The removal of the serum department of the institute from the former site at Sudbury, near Harrow, became necessary from the encroachment of the Great Central Railway and the need for enlargement owing to the rapidly growing demand for the serum which has more than doubled in the last few years. The authorities of the institute were fortunate in acquiring a site which is eminently suitable for carrying on the work of the department. The routine work consists in the preparation and testing of antitoxins, such as the diphtheria and tetanus antitoxins, and of antistreptococcic serum. In relation to this routine work, however, many problems of high scientific interest arise and the new buildings provide facilities for the investigation of these problems and for certain researches in comparative pathology which can be suitably conducted only under such conditions as exist in a department situated as is this. The buildings are on the summit of a small hill and are surrounded by about 28 acres of meadow land which is conveniently divided into small fields suitable for pasturing and exercising the horses and other animals, such as goats and sheep, which are used in connexion with the work. Valuable researches have already been made by this department under its former head, Dr. W. Bulloch, and the present superintendent, Dr. G. Dean, in association with Dr. C. Todd, has carried out important investigations relating to the problems of immunity and to such practical subjects as the transmissibility of human tuberculosis to cattle. It is hoped that these laboratories will become a centre for much valuable research work, and the governing body of the institute will welcome serious investigators and will gladly place the unique facilities of this establishment at their disposal.

Queensberry Lodge itself has been retained practically as it was when the estate was acquired by the institute and is now used for the accommodation of the junior staff, administrative offices, &c. The bacteriologist in charge lives in a separate house. The laboratories which have been built by the institute are of the most modern type with papyrolith floors with rounded corners, white glazed adamant walls with a dado of white tiles, and large window space. They are warmed by open fireplaces. There is a good gas- and water-supply and the buildings are lighted by Welsbach incandescent gas-burners. The main ideas in the arrangement of the departments have been to provide separate buildings and isolated rooms for carrying out the different processes for the production and testing of antitoxins, thus insuring absence of risk of contamination of the serum and at the same time adequate laboratory accommodation for the prosecution of research work. In this connexion it has been considered advisable to have several small laboratories for one or two workers where undisturbed work can be carried on rather than large laboratories capable of accommodating a number of workers.

The laboratories comprise a large routine laboratory furnished with both side and roof lights and fitted with centre and side benches, fume chamber, &c. It is used for the filtration of diphtheria toxins, for general chemical work, for fitting up apparatus, and for such work as section-cutting and blow-pipe work. Two private research laboratories are beautifully lighted with a north-east aspect. They are completely equipped as bacteriological laboratories, have low benches for microscopical work and separate Hearson incubators, shelves for reagents, media, &c. The windows in the serum laboratory are of ruby glass so as to insure a non-actinic light. It is used for the filtration and storing of the various sera and contains two large ice-safes for that purpose. It has a work bench with connexions with a water vacuum pump and is also furnished with a Geryk pump. The engine-room is fitted with a gas-engine driving a large Runnes centrifugal machine and a disintegrator. There is also a Root's blower which supplies sterile air to the bottling room. There is a water-pump supplying a vacuum and high-pressure air to the neighbouring rooms. The incubation room is a small insulated room, the insulation being obtained by its having double walls the space between which is packed with asbestos. It has two doors forming a small "air-lock" to prevent the inrush of cold air on opening the door. The walls are fitted with shelves from floor to ceiling and by means of a gas-stove and Roux regulator the temperature is maintained at body heat. The room is used for the cultivation of the different micro-organisms connected with the work of the establishment. The bottling room is reserved entirely for distributing the serum into flasks. The windows are of non-actinic ruby glass and are air-tight. Before bottling is commenced the room is filled with formalin vapour which is allowed to remain in the closed room all night. In the morning the formalin vapour is displaced by a current of cold air from the outside of the building which is blown into the room by the Root's blower in the engine room. This air is sterilised before its entry by passage through a large filter of sterile cotton-wool. The current of sterile air is maintained throughout the process of bottling, entering the room through the filter and passing out by an exit in the roof through a cotton-wool filter. The culture medium and sterilising room is used for the preparation and sterilising of the media employed in the cultivation of the various micro-organisms. It is fitted with autoclaves, steam-sterilisers, thermostats, &c. This room communicates with the incubation room by double doors through which the flasks can be passed after inoculation, thus avoiding lowering the temperature of the hot room by repeatedly entering it. The glass-cleaning room contains a dry-heat disinfector for sterilising the glass apparatus and is fitted specially for the purpose of cleaning and sterilising glass apparatus. An isolated laboratory stands entirely apart

from any other building. It is used for the preparation, filtration, and precipitation of such things as tetanus toxin, &c., and for the examination of small animals.

In addition to these, at a considerable distance from the main laboratories, there are a small department and stable for carrying on work in connexion with other infectious diseases in addition to those previously referred to and permitting the range of work undertaken to be considerably widened in the future.

The animal houses are ordinary garden greenhouses which have been adapted and prove excellent for the purpose, as they are easily kept at an even temperature. The largest is used as an experimental animal house for the housing of animals employed in the testing of the sera, toxins, &c. The roof is covered with vines which have been retained as affording a shelter from the sun in summer. The two smaller houses are used for breeding purposes. The three houses are heated by a system of hot-water pipes. The principal stables form two blocks of buildings about 200 yards from the laboratories. They are all brick and of the most modern type. There are two yards, the first of which is covered by a high glass roof, and opening from this yard is the operating-room where the horses are injected and bled. The stabling consists entirely of loose boxes which are all of a large size, so that the animals have ample room to move about freely, and are very well ventilated.

In the vicinity of the operating-room is a small isolated room with slate benches where the blood flasks are allowed to stand and where the serum is decanted. There are also a cottage for the head groom and quarters for the unmarried grooms, harness-room, coach-house, fodder-room, &c. In one of the meadows at a distance from the stables is a loose box which is used as an isolation box. All new horses undergoing a period of quarantine before being admitted into the stables are kept under observation here. There are several other loose boxes in the various meadows, as well as an isolated cowshed, goat-house, pigeon-house, rabbit-runs, &c.

The department is less than a mile from the nearest telegraph office and is on the National Telephone Company's system. The various blocks are connected by inter-communicating private telephones. It will be seen from this description that a very valuable addition has been made not only to the scientific establishments of the kingdom, but also to practical medicine.

MEDICINE AND THE LAW.

The Consequences of Injuries to Workmen.

A LETTER in another column calls attention to a matter which deserves the attention of working men and also of their employers. Our correspondent witnessed an accident after which the fellow workmen of a labourer struck by a falling plank proceeded to bathe his injuries with the water supplied to them for their work, and he suggests that it would have been better to have summoned a medical man or to have taken the man to the nearest hospital at once. As the accident took place in a central part of London this would have been easy and as bricklayers are persons unlikely to have clean hands or any clean appliances at their command it certainly would have been wiser to have obtained professional aid without delay. This would be desirable both on account of the risk of septic conditions being set up by the rough-and-ready methods described and also because the man's injuries might be more serious than his comrades would suppose and might render immediate attention desirable. The extent to which the remoter consequences of injury may affect not only the man but those who employ him may be judged from a case decided in the Court of Appeal in June, 1902,[1] under the Workmen's Compensation Act, 1897. The widow of a workman had claimed compensation and the evidence showed that the deceased, while employed at a factory, had been carrying some heavy pipes when one fell and inflicted a wound on his toe. The accident happened on Sept. 2nd; he attended a hospital as an out-patient until the 17th, when erysipelas set in and on the 27th he died. Medical evidence was given and it was not disputed that as erysipelas did not supervene until 15 days after the accident the wound had probably been re-opened and become septic, possibly through the deceased walking to and from the hospital, and that the death was due to this by no means necessary consequence of a slight injury. The county court judge held that death in these circumstances was not the result of the accident so as to make the employers liable to compensate the widow for the loss of her husband. It was, however, contended in the Court of Appeal on behalf of the widow that the county court judge had applied the wrong test in holding that the death must be the natural or probable consequence of the injury. The Court acceded to this view, pointing out that the Act speaks of death which "results from the injury," or in the words of the Master of the Rolls, "That the applicant for compensation has to show an accident causing injury and death or incapacity resulting from the injury." He added that there was nothing inconsistent in saying that death resulted from the injury and yet that it was neither the natural nor the probable consequence of it. Lord Justice Cozens Hardy said, "The question is, From what, in fact, has death resulted? The answer to that question does not depend upon what was at first thought to be reasonable and probable." It will be seen from these quotations that if in such a case as that described by our correspondent the injury caused by the accident is considerably increased by the careless conduct of the workman it has still to be paid for in full by the employer or his insurance company. These have no power to insist upon his taking proper precautions or upon his carrying out any treatment that may be recommended to him. The position in which the persons liable to compensate are thus placed is not altogether consistent with justice. A labouring man is not likely to realise the full danger of his conduct or to court death, but at the same time he has no temptation to get well quickly when continued incapacity for work means leisure enjoyed at the expense of others. No account, however, is taken either of his ignorance or of his indifference by the law, for both the Acts of Parliament dealing with workmen's compensation and the decisions of the High Court interpreting them appear to shrink from according formal recognition to surgical science and from inforcing upon the workman any treatment that he may not select of his own free will.

[1] Dunham v. Clare, 1902. 2 K.B., 292.

The Isolation of Cases of Glanders.

Reference was made in THE LANCET of July 4th, p. 49, to the case in which the authorities of the London Hospital sought the advice of the magistrate presiding at the Thames police-court with a view to the removal of a patient suffering from glanders. It was stated at the police-court that the guardians of the Whitechapel Infirmary would not take him in and that the magistrate had no power to compel the Metropolitan Asylums Board to take charge of him, because glanders is not a disease named as a dangerous infectious disease in the Public Health (London) Act, 1891, and has not been added to the list by the local authority. The Public Health Acts and the Acts for the prevention of the spread of infectious disease adopt the course of specifying certain diseases which are to be dealt with under the statutory powers given and enable local sanitary authorities to include others should they wish to do so. This can be done without much delay in urgent cases, as, for example, where there is an epidemic of small-pox and it is thought desirable that cases of supposed chicken-pox should be notified, but if it is thought that rare but dangerous diseases such as glanders should be included it would be more convenient to provide for them before patients actually suffering from them are discovered. The man at the London Hospital was presumably admitted before the nature of his disease was ascertained. Had he been rejected it would not have been obligatory upon the staff of the hospital to inform anyone of the case and the man could not have been punished for exposing others to the risk of infection however recklessly he might have done so.

THE ROYAL COLLEGE OF PHYSICIANS OF LONDON.

AN extraordinary Comitia was held on July 2nd, Sir WILLIAM SELBY CHURCH, Bart., K.C.B., the President, being in the chair.

Communications were received from—

1. The Secretary of State for War, asking the advice of the College as to the practical safety and prophylactic value of inoculation with Professor A. E. Wright's anti-typhoid fluid.

2. The Home Secretary, asking for observations by the College on a proposed inquiry into the causes which have led to the rejection in recent years of so many recruits for the army on the ground of physical disability and the possible measures by which this state of affairs may be remedied.

3. The secretary of the Royal College of Surgeons of England reporting certain proceedings of its council on May 14th and June 11th.

4. The General Medical Council, proposing certain alterations in the form of the annual returns of the results of examinations for professional qualifications.

5. Mr. Cornelius Hanbury, offering for the acceptance of the College a medallion portrait of Dr. Lettsom.

Reports were received from:—1. The Censors' Board on the reply to be sent to the letter of the London County Council of March 17th in regard to the nomination of specially skilled pathologists for post-mortem cases of a special nature. The Board agreed in the desirability of this and was of opinion that steps should be taken for simplifying the arrangements now existing in coroners' courts and for amending the Acts relating to coroners, as in the present Coroners Act the College was not in a position to make such nominations, the proposed fee of £2 2s. being wholly inadequate. 2. The committee appointed to consider the date at which the Harveian oration and dinner should in future take place. 3. The Committee of Management, dated June 8th, proposing that the curriculum of the Johns Hopkins University be recognised as admitting to the final examination for the College Licence and that the intermediate examination in science of the University of Wales be accepted in lieu of Parts I. and II. of the first examination for the College Licence. 4. The Laboratories Committee, dated June 5th, notifying the appointment of Dr. Frank C. Lewis as assistant bacteriologist in place of Dr. W. d'E. Emery, resigned.

The REGISTRAR proposed for the second time a by-law to admit Lieutenant-Colonel G. F. A. Harris, I.M.S., resident in India, to the Fellowship, *in absentiâ*.

The PRESIDENT then dissolved the Comitia.

VITAL STATISTICS.

HEALTH OF ENGLISH TOWNS.

IN 76 of the largest English towns 8730 births and 4169 deaths were registered during the week ending July 4th. The annual rate of mortality in these towns, which had been 14·3 per 1000 in each of the two preceding weeks, rose last week to 14·4 per 1000. In London the death-rate was 13·9 per 1000, while it averaged 14·6 in the 75 other large towns. The lowest death-rates in these towns were 4·8 in Grimsby, 5·3 in Hornsey, 6·4 in Walthamstow, 6·8 in Leyton, 7·4 in Bournemouth, 7·5 in Walsall, 8·1 in Tottenham, and 8·5 in Croydon; the highest rates were 19·1 in Rotherham and in Swansea, 19·3 in Wigan, 20·3 in St. Helens, 20·8 in Sheffield, 21·1 in Great Yarmouth, 21·3 in Sunderland, 21·8 in Tynemouth, and 23·3 in Merthyr Tydfil. The 4169 deaths in these towns last week included 436 which were referred to the principal infectious diseases, against 404, 415, and 429 in the three preceding weeks; of these 436 deaths 109 resulted from whooping-cough, 106 from measles, 96 from diarrhœa, 53 from diphtheria, 37 from scarlet fever, 28 from "fever" (principally enteric), and seven from small-pox. No death from any of these diseases was registered last week in Hornsey, Tottenham, Bournemouth, Ipswich, Devonport, Burton-on-Trent, Handsworth, Smethwick, Bury, or Tynemouth, while the highest death-rates from the principal infectious diseases were recorded in Great Yarmouth, Hanley, Coventry, Oldham, Sheffield, Rotherham, and Merthyr Tydfil. The greatest proportional mortality from measles occurred in Coventry, Stockport, Sheffield, and Merthyr Tydfil; from scarlet fever in Bolton; from diphtheria in Portsmouth, Great Yarmouth, and Hanley; from whooping-cough in Oldham, Burnley, Sheffield, Rotherham, and Sunderland; from "fever" in Barrow-in-Furness; and from diarrhœa in Leyton. Of the seven fatal cases of small-pox registered in these towns last week two belonged to Hanley, two to Liverpool, two to Oldham, and one to Huddersfield. The number of small-pox patients under treatment in the Metropolitan Asylums hospitals, which had been 64, 70, and 67 at the end of the three preceding weeks, had further declined to 57 at the end of last week; four new cases were admitted during the week, against nine, 16, and seven in the three preceding weeks. The number of scarlet fever cases in these hospitals and in the London Fever Hospital on Saturday last, July 4th, was 1646, against numbers declining from 1785 to 1644 on the four preceding Saturdays; 241 new cases were admitted during last week, against 145, 170, and 234 in the three preceding weeks. The deaths referred to diseases of the respiratory organs in London, which had been 141, 134, and 150 in the three preceding weeks, further rose last week to 164, but were 30 below the number in the corresponding period of last year. The causes of 45, or 1·1 per cent., of the deaths in the 76 large towns last week were not certified either by a registered medical practitioner or by a coroner. The causes of all the deaths were duly certified in West Ham, Bristol, Nottingham, Bradford, Leeds, Hull, and in 52 other smaller towns; the largest proportions of uncertified deaths were registered in Birmingham, Liverpool, St. Helens, Manchester, Sheffield, and Sunderland.

HEALTH OF SCOTCH TOWNS.

The annual rate of mortality in eight of the principal Scotch towns, which had been 17·5, 17·0, and 19·1 per 1000 in the three preceding weeks, declined again to 16·3 per 1000 during the week ending July 4th, but showed an excess of 1·9 per 1000 over the mean rate during the same period in the 76 large English towns. The rates in the eight Scotch towns ranged from 8·9 in Dundee and 12·4 in Leith to 20·1 in Perth and 20·8 in Paisley. The 533 deaths in these towns included 18 which were referred to whooping-cough, 17 to diarrhœa, seven to scarlet fever, six to measles, six to "fever," and four to diphtheria, but not one to small-pox. In all, 58 deaths resulted from these principal infectious diseases last week, against 49, 47, and 65 in the three preceding weeks. These 58 deaths were equal to an annual rate of 1·8 per 1000, which was 0·3 per 1000 above the mean rate last week from the same diseases in the 76 large English towns. The fatal cases of whooping-cough, which had been 20, 16, and 28 in the three preceding weeks, declined again last week to 18, of which 12 were recorded in Glasgow, four in Greenock, and two in Edinburgh. The deaths from diarrhœa, which had been 20, 14, and 16 in the three preceding weeks, further rose to 17 last week and included eight in Glasgow, three in Edinburgh, two in Aberdeen, and two in Paisley. The fatal cases of scarlet fever which had been three, four, and three in the three preceding weeks, increased again last week to seven, of which three occurred in Glasgow and two in Paisley. The deaths from measles, which had been nine and 13 in the two preceding weeks, declined again to six last week and included three in Glasgow and two in Paisley. The fatal cases of "fever," which had been two, three, and one in the three preceding weeks, rose again last week to six, of which two were registered in Glasgow and two in Edinburgh. The four deaths from diphtheria corresponded with the number in the preceding week and included three in Edinburgh. The deaths referred to diseases of the respiratory organs in these towns, which had been 75, 73, and 92 in the three preceding weeks, declined again last week to 86, and were slightly below the number in the corresponding period of last year. The causes of 28, or more than 5 per cent., of the deaths in these eight towns last week were not certified.

HEALTH OF DUBLIN.

The annual death-rate in Dublin, which had been 22·4, 19·7, and 22·3 per 1000 in the three preceding weeks, declined again to 17·2 per 1000 during the week ending July 4th. During the past 13 weeks the death-rate has averaged 22·7 per 1000, the rates during the same period being 14·7 in London and 17·8 in Edinburgh. The 125 deaths of persons belonging to Dublin registered during the week under notice showed a decline of 37 from the number in the preceding week and included five which were referred to the principal infectious diseases, against nine, 11, and 13 in the three preceding weeks; of these three resulted from measles, one from small-pox, and one from diarrhœa, but not one from scarlet fever, diphtheria, whooping-cough, or "fever." These five deaths were equal to an annual rate of 0·7 per 1000, the death-rates last week from the principal infectious diseases being 1·2 in London and 1·9 in Edinburgh. The fatal cases of measles, which had been one and four in the two preceding weeks, declined again last week to

three. The deaths from small-pox, which had been three and two in the two preceding weeks, further declined to one last week. The mortality from diarrhœa corresponded with that recorded in the preceding week. The 125 deaths in Dublin last week included 25 of children under one year of age and 31 of persons aged 60 years and upwards; the deaths both of infants and of elderly persons showed a slight decline from the respective numbers in the preceding week. Two inquest cases and two deaths from violence were registered and 42, or one-third, of the deaths occurred in public institutions. The causes of two, or 1·6 per cent., of the deaths in Dublin last week were not certified.

THE SERVICES.

ROYAL NAVY MEDICAL SERVICE.

THE following appointment is notified:—Staff Surgeon F. J. A. Dalton to the *St. Vincent* for the *Iris*.

ROYAL ARMY MEDICAL CORPS.

Captain L. J. C. Hearn is placed on temporary half-pay on account of ill-health. Dated June 27th, 1903.

Lieutenant F. L. Vaux, Canadian Army Medical Service, is granted the local rank of Captain in the Army whilst serving in South Africa. Dated Feb. 20th, 1900.

Captain F. L. Vaux, Canadian Army Medical Service, on having relinquished the local rank of Captain for service in South Africa, is granted the honorary rank of Captain in the Army. Dated Dec. 5th, 1900.

VOLUNTEER CORPS.

Royal Garrison Artillery (Volunteers): 1st Cornwall (Duke of Cornwall's): Surgeon-Lieutenant J. Ratcliff-Gaylard to be Surgeon-Captain. Dated July 4th, 1903.

Royal Engineers (Volunteers): 1st Cheshire: Surgeon-Lieutenant T. R. W. Armour resigns his commission. Dated July 4th, 1903.

Rifle: 8th Volunteer Battalion the Royal Scots (Lothian Regiment): Surgeon-Lieutenant G. A. Dickson resigns his commission. Dated July 4th, 1903. 1st Volunteer Battalion the Duke of Cambridge's Own (Middlesex Regiment): Surgeon-Lieutenant G. P. Chappel to be Surgeon-Captain. Dated July 4th, 1903. 1st (Hallamshire) Volunteer Battalion the York and Lancaster Regiment: Surgeon-Lieutenant S. F. Barber to be Surgeon-Captain. Dated April 11th, 1903.

ROYAL ARMY MEDICAL CORPS (VOLUNTEERS).

The Manchester Companies: Lieutenant A. T. Lakin to be Captain. Dated July 4th, 1903.

On June 24th the annual inspection of the Maidstone Companies of the Royal Army Medical Corps (Volunteers) was held in Mote Park by permission of the Lord Mayor of London. Surgeon-General Sir William Taylor, K.C.B., Director-General of the Army Medical Department, congratulated Major Oliver, Commandant of the Maidstone Companies Royal Army Medical Corps (Volunteers) upon the appearance and the smartness and intelligence of his men. He was glad to hear that 50 of their members had been for some time at Netley and that the annual training had been fixed to take place there this year. It was the best place for training, and they would, he hoped, be able to take advantage of the indoor training and ward work.

VOLUNTEER INFANTRY BRIGADES.

Welsh Border: Surgeon-Lieutenant-Colonel R. de la Poer Beresford, 2nd Volunteer Battalion the King's (Shropshire Light Infantry), to be Brigade-Surgeon-Lieutenant-Colonel. Dated July 4th, 1903.

THE PHYSIQUE OF THE WORKING CLASSES AND ARMY RECRUITS.

The alleged deterioration in the physique of the working classes to which the Earl of Meath has recently drawn attention in connexion with the Report of the Royal Commission on Physical Training in Scotland and the Report of the Inspector-General of Recruiting for 1902 gave rise to an interesting discussion in the House of Lords the other day. The question is obviously a very important as well as a big one and calls for thorough investigation. The Duke of Devonshire, who spoke on behalf of the Government and who, if seldom or ever enthusiastic about anything generally manages to make some very pertinent remarks and to take a practical business-like view of most subjects under discussion, fully recognised its serious import from both an industrial and military point of view. The Duke, in speaking of the large number of army recruits that were rejected, referred to a minute on that subject by the Director-General of the Army Medical Service and quoted a passage from that minute which asked, "If these men are unfit for military service, what are they fit for?" A Royal Commission may possibly be appointed to investigate and to report upon the whole subject, but in the mean time a preliminary application will be made to the medical profession through the Royal Colleges of Physicians of London and Surgeons of England and Ministers will be guided by the replies they receive.

REGIMENTAL HOMES.

A grand military display by the 18th Hussars in aid of the Cottage Homes of this regiment and the East Lancashire Regiment, will take place on Wednesday afternoon, July 22nd, in the beautiful grounds of Cannizaro, Wimbledon. The 18th Hussars have already started one home, which has been occupied for the past six months. Eight other regiments have also opened homes under the Regimental Homes scheme which is based on the principle of regiments making provision for their own deserving men when incapacitated from earning their livelihood.

DEATH IN THE SERVICES.

Surgeon-General Archibald Henry Fraser, A.M.D., honorary physician to the King, on July 5th at his residence at Slough, in his seventy-seventh year. He entered the army as assistant-surgeon in 1851 and served in India during the Mutiny in 1857–58 (medal). He was promoted to the rank of surgeon in 1858, surgeon-major in 1871, deputy surgeon-general in 1877, inspector-general in 1884, and retired in 1887.

Correspondence.

"Audi alteram partem."

OPTICIANS AND SIGHT-TESTING.

To the Editors of THE LANCET.

SIRS,—For upwards of four years I have held the post of examiner to the Worshipful Company of Spectacle Makers in conjunction with Professor Silvanus P. Thompson, F.R.S., the Reverend J. Henry Smith, B.A. (late principal of the College of God's Gift, Dulwich), and Mr. W. H. Thornthwaite. These examinations, each of which usually occupies three days, are held for the purpose of examining opticians in the knowledge necessary for their craft and embrace an elementary knowledge of theoretical and applied optics, including the laws of refraction and reflection, the Gauss theory, the causes and means of correction of spherical and chromatic aberration, the course of axial and oblique rays through optical systems, and a thorough practical knowledge of the make and fitting of spectacles and of the carrying out of oculists' prescriptions; further, a knowledge of arithmetic, elementary algebra and plane trigonometry; an elementary acquaintance of heat, pressure, and temperature, and of instruments employed for their measurement; also, the principles underlying and the use of the camera, the microscope, telescope, and other optical and scientific instruments. Although the examination includes the construction of the eye and its refraction, treated as an optical instrument and from a purely theoretical point of view, practical sight-testing has always been excluded as well as, of course, diseases of the eye or the application of any of the instruments used by ophthalmic surgeons, such as the ophthalmoscope and ophthalmometer.

Up to the present time I have, owing to the attitude taken on the subject by the general body of ophthalmic surgeons, opposed the inclusion of sight-testing in the examination; but the desire on the part of the trade that this be done has gradually become so pronounced that I feel my position has become strained to the point where I am compelled to declare publicly my views on the matter. My reason for taking a share in the examination has been from the first to watch the interests of the medical profession as well as that of the public, confining the syllabus solely to a knowledge of pure optics, such as would necessarily be a part of the trained optician's education. In the performance of this obligation I have devoted an immense amount of time, labour, and

energy, since I found the generality of dealers in optical goods deplorably wanting in scientific knowledge and I felt it a duty which I owed to the public to do all in my power to raise his standing so that he may not only sell spectacles and optical instruments but be also able, if not to make, at least to repair and to adjust them with intelligence and precision. To some slight extent my hopes have been realised and had opticians been able to adhere rigidly to this scheme I doubt if any of my colleagues could have said a word against it. But, Sirs, the opticians' trade is not, and indeed cannot be, confined within the present limits of the spectacle makers' examination. From the time of Silvanus Amatus, the inventor of spectacles in the thirteenth century, until the present day opticians have not only made spectacles but have also tested the sight of their customers. They have done this as a body for upwards of 500 years and it would be impossible for anyone to stop it seeing that the ophthalmic surgeons have done so for only some 50.

The British Isles contain a population of about 42,000,000; of these, the great majority require glasses during some period of their lives. Now, the average medical man, although skilled in medicine and surgery, has not devoted his attention to the intricacies of sight-testing and optics and is therefore more likely to err in fitting spectacles than any optician who has passed the S.M.C. examination, seeing that the latter is fortified by his optical training. We have only very few general practitioners and specialists in other branches who are, in addition to the ophthalmic surgeons, entirely competent to deal with the testing of sight.

Now, I hold, Sirs, that the 400 ophthalmic surgeons and the very restricted number of other medical men are absolutely unable, for physical reasons, to deal with the optical requirements of this country. What, then, is to be done? I see no possible solution except to recognise frankly the traditional right of the opticians to practise the art of sight-testing, aiming rather to restrict them to the correction of simple errors of refraction in healthy eyes and to induce them to be bound over to refer to the ophthalmic surgeon every abnormal case—that is, every person in whom vision cannot be corrected up to normal at once, also persons under 16 years of age, cases of spasm, of high myopia, and abnormal muscular conditions. Were the opticians trained and examined in their work they would, it is true, dispose of the bulk of the simple cases requiring glasses but would be able, without attempting to diagnose diseases, at least to know when an eye was normal or healthy, referring all cases not coming under this category to a higher authority. It is not desirable, and should be prohibited by law, for any optician to use any drug for sight-testing, or any medicament or treatment whatsoever, but since, as I have said, no one dare attempt to stop opticians selling glasses, surely we ophthalmic surgeons should endeavour to raise their standard so that they may aid and not oppose us, and that we may aid and not oppose them in taking care of the eyesight of the nation.

It may have been urged that if the opticians were trained so as to test sight properly they would be depriving the ophthalmic surgeons of their patients and consequent emoluments, but all experience goes to show that the contrary is the case. A trained optician who knows how to recognise a healthy and normal eye is far more likely to refer all the diseased and "abnormal" ones to a medical man than one who is not so trained. There are, moreover, immense areas all over the kingdom where there are no oculists at all, or if there be they are not accessible to the mass of the public. Are we to consider it part of our duty to try to deprive the inhabitants of these parts of such assistance to their sight as it is possible for them to obtain? It is evident that if we wish our countrymen to keep to the front in trades and manufactures our artisans must be able to see the work on which they may be engaged, which means that they must have their sight efficiently corrected. If our medical men are unable to test more than a small fraction of these people others must be trained to do the work. If this be done thoroughly and sensibly I feel convinced that it will greatly benefit the public by calling attention to their optical defects and the ophthalmic surgeons by the number of cases which such men will know it is their duty to urge to obtain professional advice. The alternative, which we as ophthalmic surgeons would undoubtedly prefer, would be the institution in the medical curriculum of a special optical training, compulsory on all medical men who undertake sight-testing and eye work. I am convinced that only ill results would accrue to the public and to the ophthalmic branch of the profession if we succeeded in blocking advancement of the optical trade to a higher status. For my part I am afraid lest the opposition of the profession to the adoption of sight-testing in the examination of the Spectacle Makers' Company may possibly have the effect of causing that company to defer taking action in this direction. This will lead to the deplorable result of the trade obtaining certification *of a kind* from less responsible corporations, and without that restraining influence on the scope of the examination which it is now so easy for the profession to secure, if they take up a judicious and friendly attitude to the scheme under consideration.

Bearing in mind the fact that the optical needs of the public are out of all proportion to the possible attention to be obtained from oculists and other competent medical men, and that therefore persons with defective eyesight are compelled to resort to opticians for assistance, is it not time that the profession should approach this question in the same spirit in which they had been compelled to deal with the position of midwives? It will be remembered that by the Midwives Act, which came into force in April last, a Central Board has been established to examine and to issue certificates to midwives which qualify them to practise. It seems to me that a similar Act might well obtain to regulate the practice of the optical craft and the position of the optician would thus be placed upon a proper footing in relation to the public and the profession. But although I have long been convinced of the trend of affairs in the optical industry and have recently had my attention drawn to the movement which is now taking place I feel that the time has come when I must reconsider my position as examiner, a position which I only consented to hold so long as sight-testing was not a part of the examination. As I now see clearly that this limitation must in the near future be removed I feel it my duty, following on the conclusion of the forthcoming examination, to withdraw and to abstain, while these matters are still under consideration and unsettled, from taking active part in the scheme as examiner. I consider that I should keep an open mind upon the subject until the details of the proposed new scheme of examination and certification have been settled in such a way that they do not in any way clash with the real interests of the medical profession.

Although I have been subjected for four years to the continual criticism of my medical colleagues I have continued my work uninfluenced by it, since I felt I was only doing what I thought to be my duty to my *confrères*, to the Spectacle Makers' Company, to the public, and to my conscience. Whether I have done right in assisting to conduct these examinations my mind is at rest; whether I have done wisely time will show.

I am, Sirs, yours faithfully,

July 7th, 1903. GEO. LINDSAY JOHNSON, M.D. Cantab.

*** We perceive by a paragraph in a local newspaper that at a recent meeting of the Canterbury school board a letter was received from Mr. W. H. Hamilton of that city offering to inspect the children's eyes and to act as honorary eye-inspector to the board. Mr. Hamilton, after discussion, was appointed "honorary refractionist during the life of the board," the gentleman having charge of the motion to this effect stating that "any spectacles recommended by Mr. Hamilton would be a matter between him and the parents."—ED. L.

ON THE USE OF THE ROENTGEN RAYS IN THE DIAGNOSIS OF PULMONARY DISEASE.

To the Editors of THE LANCET.

SIRS,—May I draw the attention of your correspondent, Dr. Stanley Green, to a description and explanation of the "transradiant triangle" observed in the posterior mediastinum during inspiration which appeared in THE LANCET of March 7th, 1903, p. 633? It is produced by the crura of the diaphragm drawing the heart downwards and forwards with each inspiratory movement. Recently I have been investigating the mechanism which produces the inspiratory distension of the apex of the lung and came to the conclusion[1] that the diaphragm is the only muscle which can effectively produce an inspiratory distension of that part of

[1] See Proceedings of the Anatomical Society of Great Britain and Ireland, May, 1903.

the lung which lies behind and above the level of the *cartilage* of the first rib. The limitation of the diaphragmatic movements in early conditions of phthisis to which Dr. J. F. H. Dally has called attention is in harmony with this conclusion.

I am, Sirs, yours faithfully,

A. KEITH, M.D. Aberd.

London Hospital Medical College, July 4th, 1903.

To the Editors of THE LANCET.

SIRS,—May I be permitted to reply to the letter of Dr. Stanley Green published in THE LANCET of July 4th, p. 55, with reference to my paper on the Use of the Roentgen Rays in the Diagnosis of Pulmonary Disease.[1] I was interested to find that his observations on the unilateral limitation of diaphragmatic movement in early cases of pulmonary tuberculosis coincide with my own. The 20 cases published in my table were those of pulmonary tuberculosis, but Dr. Green says: "Curiously enough ..... Case 2 and Case 8 are the only ones typical." He does not say of what they were typical, but I take it to mean that they were the only ones which approached the normal average, which, by the way, he misquotes. These two cases in quiet respiration approach the normal standard, but in each case in maximum respiration limitation of diaphragmatic movement is seen on the more affected side. In Case 10 both lungs are in shadow as low as the fourth rib, but the dense shadow is found on the side of greater limitation of diaphragmatic movement, which is what one would expect.

If Dr. Green will be good enough to peruse my paper a little more carefully he will find that the point which he alleges I have not mentioned with reference to the jerky movement of the diaphragm noticeable in some cases is referred to at the foot of the second column on p. 1802

"The triangular light area which is seen when the patient is looked at laterally with the light falling on the left anterior axillary fold and passing obliquely out just behind the right scapula" I have observed on many occasions. For this "lateral oblique" method of investigation we are indebted to Dr. Maurice Mignon of Nice. On looking through the chest with the fluorescent screen in the manner above described we see a clear space resembling an isosceles triangle, except that for the base line is substituted one which is convex upwards. The anterior boundary of this space corresponds to the shadow cast by the heart and the pericardium; the posterior boundary to the shadow of the vertebral column along with those of the aorta, the vena cava, and the œsophagus; and the inferior boundary to the shadow of the diaphragm and the liver. This method is at times useful in supplementing results obtained by radioscopy in an antero-posterior direction. Trusting that these few notes form a sufficient explanation,

I am, Sirs, yours faithfully,

Ventnor, July 6th, 1903. J. F. HALLS DALLY.

THE BUILDING OF HOUSES ON INSANITARY GROUND.

To the Editors of THE LANCET.

SIRS,—In reference to your annotation on this subject in THE LANCET of July 4th the following may be of interest. When preparing the first edition of "Dangers to Health" for the press I received a note from Dr. Clifford Allbutt:—

DEAR TEALE,—Can you not give us a Gothic Terrrace built on unutterable beastliness?

I immediately designed and designated the illustration: "Terrace of the future on refuse of the past."

I am, Sirs, yours faithfully,

Leeds, July 4th, 1903. T. PRIDGIN TEALE.

DIPHTHERIA AND PREGNANCY.

To the Editors of THE LANCET.

SIRS,—The publication of a case of diphtheria during pregnancy in THE LANCET of June 13th reminded me that I had a very similar case in March last. I was asked to see a woman, aged 35 years, eight months pregnant, with severe dyspnœa which had lasted three days. Her temperature was 101° F. The dyspnœa was laryngeal but there was no membrane on the fauces. I at once performed tracheotomy and gave 6000 units of antitoxin. An immense quantity of membrane was coughed up, thicker than any I had ever seen; it was like wet washleather and pieces came up two and three inches long. On the next day her temperature was normal but the pulse over 100 and respiration was hurried. No more membrane was coughed up although I dilated the tracheal wound several times. On the next day she was much the same and air entry was deficient over both lungs. On the third morning she became restless with hurried respirations and frequent cough and rapidly died from pure dyspnœa. No post-mortem examination was allowed, but I am quite sure her bronchi were full of membrane.

I am, Sirs, yours faithfully,

A. E. KENNEDY, jun.,

Honorary Surgeon Maternity Charity and St. Mary's Children's Hospital.

Plaistow, E., June 17th, 1903.

THE HISTORY OF MEDICINE.

To the Editors of THE LANCET.

SIRS,—Having read with great interest and pleasure the abstract of Dr. J. F. Payne's FitzPatrick Lectures on the History of Medicine[1] I should much like, if you will allow me space, to take the opportunity of remarking briefly on what must be considered a serious deficiency in medical education in this country and at the same time of expressing the appreciation which, in common, I am sure, with many others, I feel for the admirable effort towards filling this deficiency to which these lectures so eloquently testify. As to the general value in education of the study of history all, I take it, are agreed, but the special value of medical history to those about to embark on the practice of the art seems to have been curiously overlooked in England. If the history of the institutions of Greece and Rome is so essential to the student of philosophy and politics it is because in it may be traced the evolution of ideas in men's minds, the sequence of cause and effect in outward happenings, and the small beginnings of those great issues which result in the building up or the destruction of the most complex and extensive organisations. In the picture thus presented of a state or a system which has ceased in one sense to exist there is a certain rounded completeness of outline which is of the greatest value in training the critical faculty to appreciate the proportions of things which are still in a plastic condition of development or decline, while the inevitable absence of finer details prevents that obscuration of general tendencies and sequences which is so likely to take place in purely contemporary observations. To say that through all ages human nature remains essentially the same is to state a truism which is more often repeated than realised; to hint that with all our improved methods of observation at the present time we may occasionally fall into the same errors of interpretation (even in scientific matters) as our remote forefathers is to court contradiction from many to whom, perhaps, the domain of medical history is a Cimmerian land of unexplored and impenetrable ignorance. Again, while the rise and fall of methods and theories is a valuable study it is no less interesting and instructive to observe the outward conditions and habitudes in which the profession of medicine has found itself at different periods and in different countries. The knowledge of men and things to be acquired by such study is assuredly of value to all and should materially assist the profession at large in solving the many complicated ethical, political, and casuistic problems which confront it at the present day.

My own excursions into the territories of medical history have been neither as prolonged nor so frequent as I could have wished, but not one of them, I trust, has failed to teach me some lesson of interest and importance. I can assure the intending voyager that it is a fascinating country, as varied and striking in its features as any in which the imagination of man may travel. When once the frontier has been crossed—and that seems the main difficulty with many—the roads are comparatively easy; they are many in number and lead in all conceivable directions; and though much of the land is well mapped out there is still much to tempt explorers of all grades of capacity.

I should like to add one word more to this already lengthy letter. Let not this beautiful and fertile region be handed over to a development syndicate of examination mongers,

[1] THE LANCET, June 27th, 1903, p. 1800.

[1] THE LANCET, June 27th (p. 1793) and July 4th (p. 6), 1903.

with their attendant crowd of jerry-building cram-book makers, who will run up cheap villas where should stand substantial seats of learning and cover the country side with advertising signboards of half-knowledge, disgusting to the wise and demoralising to the ignorant. Lectures, essays, studentships, and prizes—these are the ways in which the study of medical history is to be encouraged. Let our universities and schools look to the matter and may the excellent example recently set them be not long in bearing its proper fruit.—I am, Sirs, yours faithfully,

J. M. FORTESCUE-BRICKDALE, M.A., M.D. Oxon.

Clifton, Bristol, July 6th, 1903.

THE JENNER INSTITUTE OF PREVENTIVE MEDICINE.

To the Editors of THE LANCET.

SIRS,—With reference to the annotation in THE LANCET of July 4th, p. 49, in which you mention that the name of the Jenner Institute of Preventive Medicine is about to be changed, I am instructed to state that, whereas the governing body are about for the reasons given to seek the sanction of the members of the institute and of the Board of Trade to a change of name, the new name is not at the moment definitely decided upon.

I am, Sirs, yours faithfully,

ALLAN MACFADYEN,

July 6th, 1903. Secretary to the Governing Body.

*** As the honoured name of Jenner has to be removed from the title of the institute we would suggest that the members of the institute replace it with the name of their chairman—Lister.—ED. L.

THE CONSEQUENCES OF INJURIES TO WORKMEN.

To the Editors of THE LANCET.

SIRS,—I happened the other day to see one of those accidents take place which eventually get into the law courts through claims being made by workmen against their employers for compensation and it struck me that the damages to be paid by the latter were not likely to be diminished by the methods pursued. A plank fell from a crane which was being used upon a building in course of construction and when I saw it it was descending from a great height until it passed out of sight behind the hoarding which inclosed the building. I could see from the excitement among the workmen that one of those on the ground below had been injured and I waited expecting that if alive he would be carried off to a hospital or that a medical man would be sent for. As this was not done I looked through an opening in the hoarding and saw that his companions were gathered round him and one of them was bathing his head with water from a bucket used by them for their work. What he was using as a sponge I do not know, but neither the man, who no doubt was doing his best for his friend, nor his implements seemed to me particularly clean. Of the nature and extent of the man's injuries also I know nothing, but I am pretty sure that if they were quite slight, so that he never went near a medical man at all, and if afterwards blood poisoning set in and he became seriously affected or died, the employer would have to pay not for the original injury but for the result of the accident in the widest sense of the term. Something of this kind was pointed out in THE LANCET not long ago, but the question then dealt with was rather the consequence to the employer where the workman refuses to submit to a surgical operation possibly involving danger. The hardship seems to me greater to the person who has to pay where the original injury is quite trifling and the damage is caused almost entirely by the neglect of the workman to avail himself of the most ordinary means for minimising the bad effect of a cut or blow. I should have thought that employers would have protected themselves by giving strict orders as to the course to be pursued on such an occasion. In the country a medical man would have to be sent for as quickly as possible; in London this can be done or the hospitals can be made use of.

I am, Sirs, yours faithfully,

July 7th, 1903. N. M. R.

THE GERMAN SURGICAL CONGRESS.

(FROM OUR BERLIN CORRESPONDENT.)

THE annual congress of the German Surgical Association is generally held about Easter-time, but this year, on account of the meeting of the International Congress of Medicine in Madrid, it was postponed until Whitsuntide. The Congress was opened on June 3rd and the proceedings were brought to a close on June 6th. Professor KÜSTER of Marburg presided and in his introductory speech made a sympathetic reference to the members who had been removed by death since the last meeting, the names including those of two well-known surgeons—Professor Hahn of Berlin and Professor Schede of Bonn.

Dangers of the Trendelenburg Position.

Professor KRASKE (Freiburg) said that although the Trendelenburg position was attended by manifold advantages under numerous conditions it might nevertheless occasionally lead to serious accidents. Instances of paresis of the peroneal muscles and emphysema of the abdominal walls had already been recorded. These were only temporary lesions and their after-effects were of little, if any, consequence, but the interference with the circulation which attended the production of anæsthesia in the Trendelenburg position was of much greater importance. In two cases of myocarditis the administration of ether as an anæsthetic led to a fatal issue which in Professor Kraske's opinion was due to acute dilatation of the heart, the result of increased blood pressure caused by the Trendelenburg position. In a third case the patient suffered from ileus for four days but recovered on the fifth day. In a fourth case in which the symptoms of ileus became very alarming he reopened the abdominal wound and found that the omentum was doubled up and lying above the liver, the effect being to cause obstruction of the transverse colon. He freed the omentum but the patient died. Similar observations had been made by Professor Schauta of Vienna, who found that after the intestine had undergone displacement in consequence of the employment of the Trendelenburg position it did not spontaneously return to its normal place when the patient lay horizontally; he therefore recommended that the surgeon before closing the abdominal wound should correct any displacement of the intestines there might be. Professor Kraske was of opinion that the hæmatemesis observed after laparotomy was due to distension of the gastric veins.

Professor TRENDELENBURG said that he doubted whether the cardiac embarrassment in the case of myocarditis mentioned by Professor Kraske was really caused by the elevation of the patient's pelvis and lower extremities. Such patients were not good subjects for the inhalation of an anæsthetic in whatever position they might be. With very corpulent patients he did not employ elevation of the pelvis for more than five or ten minutes at a time.

The Action of the Roentgen Rays.

Professor PERTHES (Leipsic) said that he had found that exposure to the Roentgen rays caused total disappearance of warts of the skin; microscopical examination showed that the rays acted principally on the epithelium and only to a much less extent on the connective tissue. In cutaneous ulcers the formation of new epithelium was hindered by the rays and this observation led him to try the effect of them on cutaneous carcinoma. The result was successful in cases of rodent ulcer and in a case of cancer of the breast which had relapsed after operation. There was a marked difference between the effects produced by the various kinds of vacuum tubes, "soft" tubes being required for superficial cancers and "hard" tubes for those that were deeply seated.

Professor LASSAR (Berlin) said that dermatitis might be cured by exposure to the Roentgen rays and showed a patient who had been successfully treated in this way for rodent ulcer (cancroid) of the nose.

Dr. KÜMMEL (Hamburg), on the other hand, described a case in which long-continued employment of the Roentgen rays had caused ulceration and finally carcinoma.

Transfusion.

Professor KÜTTNER (Tübingen) said that he had made experiments for the purpose of ascertaining whether other solutions than salt solution could be used for intravenous injection; he had not, however, obtained any results of

importance. He had found that animals which had been bled nearly to death were benefited by the administration of oxygen and he demonstrated an apparatus by means of which the intravenous injection of saline solution and the giving of oxygen could be combined.

Aseptic and Antiseptic Surgery.

Professor NEUBER (Kiel), one of the earliest advocates of aseptic surgery at a time when antiseptic dressings were still universally adopted in Germany, said that he had succeeded in obtaining primary union in 97·5 per cent. of his cases. This highly favourable result was obtained by scrupulous attention to the disinfection of the field of operation as well as to the sterilisation of dressing materials and instruments; these precautions had been features of his operative work for the last 18 years. Among the various surgical expedients enumerated by him were the bringing together of the margins of a wound by clamps instead of by sutures and the warming of Péan's forceps previously to their application in order thereby to produce a quick coagulation of the blood. He strongly recommended surgeons to keep the skin of their hands soft, for a soft skin was much more easily cleansed than a rough one and required less brushing and washing with antiseptic solutions.

Dr. HEILE (Breslau) made some remarks on iodoform, especially with reference to the differences of its effects as observed in the test-tube and in practical surgery. Bacteriologists maintained that iodoform possessed no antiseptic properties, whereas all surgeons recognised its utility in treatment. Dr. Heile believed that he was able to explain away this apparent contradiction, for in experiments made under anaerobic conditions he found that iodoform gave rise to di-iodacetylene, an iodine compound which was even more bactericidal than corrosive sublimate. Iodoform was therefore clinically valuable when applied in the depth of wounds or injected into joints where the air did not penetrate.

Cancer of the Stomach.

Professor PETERSEN (Heidelberg) said that he had made clinical and microscopical investigations of 250 cases of cancer of the stomach and intestines. There was a marked difference between cancer of the rectum and of the stomach, because in the former case the tumour usually grew into the deeper layers of the tissues involved, whereas in the latter it grew more superficially into the mucosa. He was convinced that many cancer cells perished in the glands. He was led to that opinion by the fact that of 18 patients operated on for cancer in the Heidelberg clinic seven were still alive a comparatively long time after the operation and this result was obtained without removal of the glands. Cancer germs must certainly have been present in the glands and must have with equal certainty perished since the operation. In cancer of the intestines and other localities, such as the lip, the conditions were quite different and relapses were of common occurrence. In these situations complete removal of the glands was, therefore, quite indispensable, whereas in cancer of the stomach extirpation of the adjacent glands was not so necessary. With respect to the relative success of various gastro-intestinal operations, Professor Petersen said that according to the Heidelberg statistics the prolongation of the patient's life was for four or five months after gastro-enterostomy and for six or eight months after resection.

(To be continued.)

BIRMINGHAM.

(FROM OUR OWN CORRESPONDENT.)

Medical Officer of Health.

THE health committee has now made a recommendation to the council for this appointment and there is no doubt that the gentleman upon whom its choice has fallen will be elected to the position at the next meeting of the council. A number of applicants sent in testimonials and from amongst them seven were selected. This number was further reduced to three and from these Dr. John Robertson was chosen. He is a Doctor of Medicine, Master in Surgery, and Bachelor of Science in Public Health of the University of Edinburgh, where he obtained his first medical degrees in 1884. He was appointed medical officer of health of St. Helens in 1891 and whilst holding that position undertook a great deal of work in connexion with the investigation of sewage treatment, the bacteriological examination of diphtheria cases, the serum diagnosis of typhoid cases, and investigations on endemic typhoid fever. During his occupancy of this post he acted as extern examiner for the degree of Bachelor of Science in his university. Six years ago Dr. Robertson was appointed medical officer of health of Sheffield, where he has also been professor of public health in the University College, the bacteriological laboratory of which he was instrumental in establishing.

Rowton House.

As a step towards solving the housing difficulty, so pressing in this city, it was decided some time ago to erect by private effort and as a commercial undertaking a Rowton House similar to those in London. The preliminary processes have now reached a point at which the formal laying of the foundation-stone was possible, and this function was performed a few days ago by Princess Christian. Her Royal Highness, after a progress through the city, arrived at the Council-house, where an address was presented to her on behalf of the corporation, after which she was entertained at lunch by the Lord Mayor. After the laying of the stone a vote of thanks was proposed to Princess Christian by the Bishop of Worcester and seconded by Sir John Holder who expressed the hope that the house would prove a great benefit to the unmarried artisans of the city. It would be, he thought, the means in a large measure of preventing overcrowding in small homes and would provide the working classes with a comfortable home. The working man would be able to have a comfortable bed in a separate cubicle and would have facilities for obtaining and cooking his food. He would also have comfortable reading-, writing-, and smoking-rooms, and excellent lavatory accommodation. In fact the house would be a working man's hotel and he would only have to pay the small sum of 6*d.* per night for his accommodation. The building was admirably designed, the site was healthy and open, facing Highgate-park, and, what was more, was within a short distance of a great number of large factories. Mr. Moore Bayley, to whose energy the initiation and carrying out of this scheme are due, submitted the vote of thanks, after the carrying of which Her Royal Highness left.

Enlargement of Local Charities.

I mentioned in a previous letter that plans were on foot for the enlargement of the operations of the lying-in charity and an appeal has now been issued for funds for this purpose. The charity commenced as a lying-in hospital in 1842, but some 30 years ago the in-patient department was closed and a system of home attendance was substituted with satisfactory results. It has, however, been found that cases constantly occur where the only chance of preserving the life of the mother or child lies in removing them from the terrible squalor and misery in which they are living and in placing them in some institution in which they can have the healthy environment and constant care which alone can save them. It is now proposed to open a home containing a few beds for such cases. A matron and two midwives will reside there and the secretarial and administrative work will be carried on in the same building. The committee estimates that to equip and to maintain a central home and to create two new districts will involve an expenditure of £8000 and an increased subscription list.—The annual meeting of the supporters of the Institution for the Blind has recently been held. From the report presented to the meeting it appears that 615 blind persons of all ages had been benefited by the institution during the year. In the industrial department £1900 had been paid in wages and goods to the value of £7000 manufactured in the workshops had been sold to the public. For some time past the committee has had under consideration the erection of a kindergarten school. Owing to lack of funds, the original plans, which involved an expenditure of £20,000, have been modified and a tender amounting to £10,467 for the erection of the building has been accepted. Adding to this the cost of the land situated in Harborne, the extreme western suburb of the city, the outside work, and the furnishing of the school, the total cost will be about £17,471. Towards this sum £10,826 have been received or promised, leaving about £7000 to be subscribed. On the general account there is a deficit of £705 and the finances of the institution are still a source of grave anxiety to the committee as a large sum has to be transferred annually from the legacy and investment account.

The University.

The annual congregation for the conferring of degrees was held in the town-hall on Saturday, July 4th, the Chancellor, the Right Hon. Joseph Chamberlain, presiding.

A number of graduates in medicine, public health, and dentistry were presented for degrees by the dean of the Medical Faculty. In the speech which he made at the conclusion of the proceedings the Chancellor gave an account of the work which had been done during the three years which have elapsed since the University was chartered, of that which was in progress, and of that which it was hoped soon to undertake. He made an urgent appeal for large additions to the sum of £450,000 which has already been raised. The prospectus of the Faculty of Medicine, which has just been issued, shows that considerable alterations have been made in the medical curriculum and in the method of paying fees, experience having, it would seem, proved that the course as originally laid down was capable of improvement. No change has been made in the courses of the first two years. In the third year the first course of medicine has been dropped and the work will consist of pathology, bacteriology, surgery, and materia medica. At the hospital the time will mainly be devoted to work of a surgical nature. At the end of this year the student will be eligible to present himself for the third university examination in pathology and bacteriology. There will in future be no special university examination in materia medica, but before proceeding to the fourth examination the student will be required to show that he has attended the courses and passed the class examination in that subject. The first course of lectures on medicine will be attended in the fourth year and the second in the fifth. At the end of the fourth year the student will be eligible to present himself for the fourth examination in subjects of State medicine—viz., forensic medicine, toxicology, and public health. The course of lectures on therapeutics will be delivered in the fifth year, at the end of which comes the final examination in medicine, surgery, midwifery, gynæcology, therapeutics, mental diseases, and ophthalmology. The regulations for the diploma in public health contain the following new provision:—

> Officers of the Royal Army Medical Corps who have studied chemistry and bacteriology at the Staff College and pursued the further course of study approved by the General Medical Council in December, 1902, will be admitted to the examination for the diploma in public health, whether they have previously been students of the Birmingham School or not.

The method of payment of fees has also been substantially altered. In the past, as in most other schools, the composition fee was payable in two instalments. In the future it will be payable in four instalments, at the commencement of each of the first four years. The incidental fees formerly charged in the practical classes have been abolished as such and the net result is a substantial decrease in the cost of a medical education.

July 6th.

LIVERPOOL.

(FROM OUR OWN CORRESPONDENT.)

The Lord Mayor of Liverpool and Hospital Supporters.

THE Lord Mayor of Liverpool is of opinion that the merchants of the city do not contribute their full share in support of the medical charities. His lordship addressed a letter to this effect to the Hospital Saturday Committee, a deputation from which waited upon him at the town-hall on July 6th, and explained their system of collections in workshops and in the streets with boxes and appeals made by the ladies' committee to shopkeepers and their employés. His lordship admitted the excellence of the work accomplished, but pointed out that it did not reach the members of the various commercial exchanges, many of whom lived beyond the municipal boundary. The deputation thought that the Hospital Saturday Committee, being a working-men's committee, could not reach the merchants and that a committee of merchants was required for that purpose.

The Healthy Condition of Liverpool and the Continued Abatement of the Small-pox Epidemic.

The death-rate of the city was 18·1 per 1000 of the inhabitants on June 25th, as against 19·6 per 1000 at the same period of last year, whilst the death-rate on July 2nd was 19 per 1000, as against 21·9 per 1000 last year. As a matter of fact, the death-rate of residents was only 17 per 1000 and it would be well if residents and non-residents were differentiated. The reduction in the number of ashpits and the supply of humanised milk for children were having effect. Between 800 and 1000 children were being supplied with the milk, the weekly output being from 40,000 to 45,000 bottles. The medical officer's statistics further showed that two deaths had occurred from small-pox during the week ended on June 25th and that 24 fresh cases had been reported, against 29 in the previous week. For the week ended on July 2nd there had been also two deaths from small-pox, while 17 cases had been reported, showing a decrease of seven on the previous week. The number of small-pox patients in hospital on July 2nd was 132, being a decrease of 29 on the previous week. These facts are eminently satisfactory and go to show that the epidemic is dying out. It was suggested by a member of the health committee that, as at this season of the year a considerable number of children die from diarrhœa, the committee should be informed as to how many of the deceased infants had been fed with sterilised milk.

The Royal Institute of Public Health.

Sir William Broadbent, Bart., M.D., and Dr. Nathan Raw, the medical superintendent of the Mill-road Infirmary, Liverpool, have been appointed to represent the National Association for the Prevention of Consumption at the forthcoming Congress at Liverpool.

Hospital Saturday Fund: Ladies' Street Collection.

The result of the collection made by the ladies on June 13th showed a decrease upon last year's total—viz., £582 4*s.* 2*d.*, as against £684 10*d.* in 1902. The result is disappointing, as all preparations had been made for reaping a substantial harvest. Unfortunately the weather was very cold during the day and somewhat showery, a factor not conducive to a satisfactory collection.

The Disappearance of Small-pox from St. Helens.

The last patient suffering from small-pox was discharged from the St. Helens small-pox hospital on June 27th and it is hoped that the district will now remain free from the disease. There have been 29 cases altogether, the first case having appeared on Dec. 18th, 1902. Dr. F. D. Harris, the medical officer of health, and his staff have been very successful in dealing with the various "contacts," all of whom were revaccinated.

July 7th.

WALES AND WESTERN COUNTIES NOTES.

(FROM OUR OWN CORRESPONDENTS.)

Cardiff Infirmary.

DURING the past six years the Cardiff Infirmary has benefited to the extent of £2300 through an organisation known as the Sunbeam League which periodically collected small sums from school children and gathered in funds in other ways. During the past 12 months the league contributed to the infirmary as much as £582, but in view of systematic district collections to which the school children contribute having been successfully inaugurated in all parts of the town this small body of workers has been disbanded.

Cardiff New Asylum.

The Cardiff Asylum committee has accepted a tender from a firm of Westminster builders in the sum of £232,390 for the erection of the new asylum exclusive of the foundations, which have already cost about £17,000, and the works connected with which are now approaching completion. There will be accommodation in the new buildings for 700 patients and administrative accommodation sufficient for 1200 patients. There are at the present time nearly 700 Cardiff patients in the Bridgend, Abergavenny, Stafford, and other asylums and the number of lunatics chargeable to Cardiff has been increasing of late years at the rate of nearly 100 annually. The proposed accommodation will not, therefore, err on the side of extravagance.

Cardiff Health Report.

The medical officer of health of Cardiff (Dr. E. Walford) has just issued his annual report and he prefaces it for the first time with a short description of the more important physical features of the town. Nearly the whole of the borough is upon gravel resting upon new red marl. The numerous wells sunk in this gravelly soil were formerly the principal sources of drinking-water supplied to the town and their extensive pollution from animal organic refuse matter was largely responsible for the high mortality from typhoid

fever and diarrhœa which at one time prevailed in the town. An abundant supply is now obtained from Breconshire. The gathering ground is on the old red sandstone and is about 35 miles from Cardiff. The watershed consists of 10,400 acres and there are three reservoirs with a total storage capacity of 1,220,000,000 gallons. There are other sources of supply within a few miles of the town but it is proposed to utilise these by means of duplicate mains for street watering, sewer flushing, and other sanitary purposes. The statistical tables which are always a prominent feature of Dr. Walford's reports, relating as they do to a long series of years, tell a very satisfactory story, for the death-rate from all causes in Cardiff has been reduced from 29 per 1000 in the middle of the last century to 17 per 1000 in the last decade and the zymotic death-rate has fallen from 8·5 per 1000 to 2·3 per 1000 in the like period. Among the factors which have led to this reduction should undoubtedly be placed the large number of parks and open spaces in the town, of which there are no fewer than 24 with a total of 366 acres. The area of the whole borough is 6373 acres. Contrary to the experience of some of the adjoining districts the system of voluntary notification of phthisis in Dr. Walford's opinion has been a success in Cardiff. During the year 109 fresh cases were notified. The number of deaths amounted to 219.

The Dispensing of Medicines for Paupers.

The Local Government Board inquiry to which reference has already been made in THE LANCET[1] as to alleged negligence on the part of the dispenser to the Cardiff Union workhouse has resulted in the Board refusing to assent to the request of the board of guardians for the dismissal of the dispenser from office. The guardians are told by the Local Government Board that there is inadequate accommodation at the dispensary for properly administering the duties of that department and they are urged to provide the dispenser with clerical and other assistance.

Isolation of Small-pox "Contacts."

The Cardiff corporation has forwarded to the Local Government Board a resolution expressing the opinion that it is necessary for the successful limitation of the spread of small-pox that sanitary authorities should have the power to require the isolation in their homes or in a shelter provided by the authorities of persons who have been exposed to the infection of small-pox when advised that the special circumstances of the case render such proceedings desirable.

Merthyr Tydvil Union Infirmary.

The Local Government Board will not consent to recognise the Merthyr Tydvil union infirmary as a training school for nurses qualifying for the office of superintendent nurse on account of there being no resident medical officer, notwithstanding the fact that the infirmary is exceptionally well equipped.[2] It appears that superintendent nurses are trained in the Reading union infirmary, where there is no resident medical officer, but the nurses attend lectures at the Reading General Hospital and are examined by the staff of that institution.

Electric Lighting of Pontypool Workhouse.

An electric lighting plant has recently been installed at the Pontypool (Mon.) workhouse, where there is accommodation for 235 inmates. The installation includes 345 lamps of 16 candle power.

University College of South Wales and Monmouthshire.

It is announced that the Samuels Medical Scholarship of £15 has been awarded to Miss L. G. Powell and the Alfred Hughes prize medal in anatomy to Mr. W. A. Dobbin.

July 6th.

IRELAND.

(FROM OUR OWN CORRESPONDENTS.)

Clouskeagh Isolation Hospital.

AFTER a legal investigation which lasted for many weeks the Vice-Chancellor delivered judgment on July 1st in the case in which the Attorney-General at the citation of Mrs. Annie Boswell sought an injunction restraining the Rathmines and Pembroke joint hospital board from establishing an isolation hospital at Clouskeagh for the treatment of small-pox or other infectious diseases. Many medical expert witnesses were examined with the usual undesirably conflicting results. Dr. E. W. Hope, medical officer of health of Liverpool, said that he had examined the site at Clouskeagh and was aware that the hospital was intended for a well-to-do population of 60,000, that it was situated in a district the population of which inside the half-mile area was only seven or eight persons to the acre, and that considering all the circumstances he did not apprehend that it would be a source of danger to the neighbourhood. He said that after careful investigation of many outbreaks of small-pox during the last 20 years the conclusion was forced upon him that the spread of the disease admitted of other ready explanation independent of the theory of aerial infection. Mr. John Peers, superintendent of public health at Wolverhampton, said that for the last seven years not one of the cases which occurred there could be explained on that theory. Dr. F. G. Adye-Curran, chairman of the joint hospital board, was of opinion that the proposed site was suitable in every possible way. Dr. Cranny, chairman of the public health committee of the Rathmines district council, considered that the hospital would not be a source of any danger. Dr. John M. Day, who has been for 20 years in charge of the Cork-street Fever Hospital, gave as the result of his experience evidence against the atmospheric propagation of small-pox. The testimony of all the above witnesses and of some others who were examined was opposed to the existence of danger from aerial convection and in favour of the present situation of the hospital. Evidence to the contrary was not, however, far to seek. Dr. John Clough Thresh of London said that after 20 years' experience of public health work he was convinced that small-pox infection might be conveyed through the air. He stated that he knew no standard work of reference in which it was not admitted that small-pox may be air-borne. He considered the site most unsuitable. Sir John W. Moore, M.D., expressed the same opinion and repeated that the atmospheric theory was accepted by the vast majority of those who were competent to judge. Professor A. Roche showed from statistics and maps that during the epidemic of 1894–95 when small-pox was isolated in the Cork-street Fever Hospital the incidence of the disease in its neighbourhood was greater than could be accounted for by any other theory. Dr. Edmond J. McWeeney agreed with him in thinking that the Clouskeagh hospital would be a source of danger. The Vice-Chancellor, after a delay of some weeks, delivered judgment and said that while it was the duty of the defendants to provide as far as possible for the protection of the public from the spread of small-pox they must discharge that duty with due regard to the safety of the people living in the immediate vicinity of the hospital. He considered that there were very grave objections to the present site of the building, situated as it is in a thickly populated neighbourhood and almost surrounded by inhabited houses. The opinion of the English Local Government Board, which would not permit an isolation hospital to be erected where there were more than 200 inhabitants within a quarter of a mile or 600 within the half mile, was entitled to great weight, especially as it appeared from the evidence that in the neighbourhood of small-pox hospitals there was a special prevalence of the disease. For this and other reasons which he mentioned the learned judge came to the conclusion that the plaintiff had made a good case and that the injunction should issue, applying, however, to small-pox only and not to other infectious diseases.

Treatment of Consumption in the Workhouses of Ireland.

At a meeting of the committee of the Dublin branch of the National Association for the Prevention of Tuberculosis held on July 1st, a letter was read from the secretary of the Local Government Board, from which it appeared that the efforts of the Board had met with a considerable amount of success. In 72 of the 159 unions in Ireland provision has now been made for the separate treatment and accommodation in the workhouses of patients suffering from consumption. The fact that the infective nature of consumption has been practically recognised in so many of the unions marks a distinct advance in the campaign against tuberculosis in Ireland.

What is a "Medical Practitioner"?

This question, to which at first sight the answer seems obvious enough, has just been found to involve rather a knotty point and the Court for Crown Cases Reserved has had to decide whether the term embraces veterinary surgeons. Under the Juries Procedure (Ireland) Act, 1876,

[1] THE LANCET, June 20th, 1903, p. 1770.
[2] THE LANCET, June 13th, 1903, p. 1701.

provision is made for the exemption from jury service of "licensed medical practitioners" actually engaged in the pursuit of their profession and it was claimed by a veterinary surgeon who had been fined for failing to respond to a summons to serve on a jury that these words protected him. Such a claim appears to be inconsistent with Section 34 of the Medical Act, 1858, which applies to Ireland and which runs as follows: "Any words importing a person recognised by law as a medical practitioner or member of the medical profession, when used in any Act of Parliament, shall be construed to mean a person registered under this Act." It was argued on behalf of the recalcitrant juror that the section was not intended to refer to other than Medical Acts in the narrower sense if only for the reason that it was drawn up before the Juries Act, and ultimately this view of the matter was adopted by the court, which held that the veterinary surgeon came within the scope of the schedule of the 1876 Act and had therefore been improperly fined.

Health of Belfast.

From the report presented to the city corporation on July 1st it appears that the health of Belfast is satisfactory. For the four weeks ended June 13th the death-rate of Belfast was 20·2—7·8 for chest affections and 1·1 for zymotic diseases. Between May 17th and June 13th 83 cases of enteric fever, 43 of simple continued fever (whatever disease this is), 37 each of scarlet fever and erysipelas, 16 of diphtheria, two of puerperal fever, and one of membranous croup have been notified. 881 births and 557 deaths occurred in this period, of which 29 were from zymotic disease, 84 from phthisis, and 133 from diseases of the respiratory organs, making a total of 217 from the two latter causes. There were five deaths from typhoid fever. A tender (£50,083) has been accepted for the infectious diseases hospital, the work to be completed within two years. The asylum committee has been granted the use of the wards of the small-pox hospital at Purdysburn during the will and pleasure of the public health committee as sleeping accommodation for male patients, possession to be given to the officers of the public health committee on receipt of 24 hours' notice and everything left in the same order and condition in which the asylum committee found it. It is to be hoped that the outbreak of small-pox in Dublin will not extend to Belfast.

The New Royal Victoria Hospital, Belfast.

The public of Belfast and Ulster had an opportunity last week of seeing the new Royal Victoria Hospital erected as a memorial of the Diamond Jubilee of Queen Victoria and which His Majesty King Edward is to open on July 27th when he visits Belfast. The chairman of the construction committee (the Right Hon. W. J. Pirrie, D.L.) and Mrs. Pirrie issued invitations to the subscribers to the building and endowment fund to inspect the new hospital on July 2nd, while on the next two days the general public were admitted at a small cost (the proceeds to be applied to the endowment fund). The result was that an immense number of people visited this latest example of hospital construction and they were all astonished and delighted with the admirable way in which it has been planned, built, and furnished. Mr. and Mrs. Pirrie were there all the three days; indeed, they have spared no time, trouble, or money in order that this hospital should be complete in every respect. As a result it is a hospital which American visitors pronounce to be far ahead of any even in the United States. On Friday, July 10th, through the kindness of Professor T. Sinclair (President of the Ulster Branch of the British Medical Association), members of the medical profession in Belfast and Ulster will have an opportunity of seeing the new hospital, as he has issued an invitation for luncheon on that day in the new buildings, after which they will be able to inspect the hospital. The plenum system of ventilation and heating was well tested last week as the place was crowded with visitors, the weather was warm and one of the days was wet and muggy, yet it was a perfect success.

The Cowan-Heron Hospital, Dromore.

At the third annual meeting of the subscribers to this institution, held on July 2nd, it was reported that during the past year 51 cases were admitted for intern treatment (10 more than for the previous 12 months). The majority of the cases were medical. There were four deaths. The income was £310 9*s.* 5½*d.* and the expenditure was £249 19*s.* 1*d.*, leaving a credit balance of £60 10*s.* 4½*d.*

Coleraine Dispensary Medical Officers.

The Local Government Board has written to the Coleraine guardians pointing out that in future one-half of the amount of fees paid to locum-tenents employed as substitutes for the medical officers of the dispensary districts of the union would be recouped out of the local taxation (Ireland) account and also stating that the important unions of Belfast, Derry, Armagh, and Cork had now agreed to allow their medical officers the full vacation of one month annually and to remunerate the substitutes for the entire period. The whole matter is to be considered by the board at a special meeting when it is hoped it will act as these other unions have.

July 7th.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Reform of the Quarantine System.

M. PROUST, Inspector-General of the Sanitary Service, endeavoured on June 23rd to justify before the Academy of Medicine the existing system of quarantine.[1] In M. Proust's opinion the sanitary regulations which have been called out of date are those which were agreed upon by the Venice Conference of 1897. To render these regulations up to date and to make them conform with the knowledge acquired since that conference sat, particularly as regards disinfection of the cargo before landing, another international conference should be summoned this year at Paris. Certain improvements are going to be introduced but M. Proust considers that there is some objection to all the suggestions of M. Tessier. The sanitary passport would be an excellent thing but in all probability the passengers, in order to escape a troublesome surveillance, would make false statements. Even a patient who had had a prophylactic dose of serum would be required to be kept under observation during the period of incubation. M. Proust allowed that some concessions might be made if strictly safeguarded. In any case the country which runs the risk of infection must always make an examination of "suspects." Certificates signed by the medical officer of the ship are not sufficient, for the medical men are in the pay of the respective shipping companies and so are not independent, for if they tell the truth they are afraid of being recalled from their posts by the company which they serve. As for a committee to decide disputes the thing is out of the question. A committee has no responsibility. M. Proust proposes to inspect the ship on her departure from the infected port and there to embark an official sanitary officer who should be independent of the shipping company. This officer would exercise sanitary surveillance during the whole voyage and on arrival only those considered to be genuine "suspects" would have to be detained. At present the sanitary service is not in such a flourishing condition that the authorities can afford to give up a system of observation which up to the present has justified its existence. The English system which has been suggested as a model for France is much more severe than that existing on the Mediterranean coasts. But in India it has not prevented the plague invading Bombay. However hardly the system may press in certain cases M. Proust considers that we must not too hastily modify the practice which, whatever its faults, has hitherto preserved Europe from epidemics.

Diphtheria in Paris Schools.

One of the medical inspectors of schools in the city of Paris, which district is suffering from an epidemic of diphtheria, has discovered that infection among the school children is principally spread by pencils. These pencils, which are municipal property, are in certain schools distributed to the scholars every morning and collected at night. In this way one child is constantly getting a pencil which has been previously used by another child. When it is remembered that children constantly put their pencils in their mouths whilst writing it is easy to see how diphtheria spreads. The inspector has sent in a report to the authorities asking that each child should have a pencil of his or her own for the future.

Cancer and the Use of the X Rays.

M. Doumerc has already reported a certain number of cases of cancer in which a cure followed the application of the x rays and M. Robin considers that the facts so reported are worthy of attention. At the meeting of the Academy of Medicine held on June 25th M. Cornil described a case

[1] THE LANCET, June 20th, 1903, p. 1771.

which had been under the care of M. Vigoroux and in which the x rays were used in combination with quinine. The case was treated at the Salpêtrière and was that of a woman with cancer of the breast, declared inoperable. Quinine alone gave no result, but when the x rays were used in addition the ulcer began to cicatrise rapidly. Then it opened again and discharged a serous fluid, while a gangrenous mass appeared at the bottom of the ulcer. This was removed piecemeal and the cavity then commenced to fill up with healthy granulation tissue. Eventually the wound cicatrised entirely. The breast became soft and supple while the axillary glands could no longer be felt. M. Vigoroux's case would have been more noticeable if the growth had been examined histologically, but M. Cornil said that there is no doubt that the x rays do modify anatomical elements in a very marked way either in the direction of promoting nutrition or of arresting new growths. The action of the rays is not merely superficial, but they act through a definite thickness of tissue and do not harm the healthy tissues through which they pass. It is also possible to regulate the depth to which they shall act. Here then there seems to be a therapeutic method of the highest interest.

Obituary.

Following close upon the deaths of Dr. Bouilly and Dr. Dreyfus-Brissac, French medicine has to mourn the loss of Dr. Gerard Marchant, physician to the hospitals, who was struck down by cerebral hæmorrhage on his way home from seeing his patients. Born at Toulouse in 1850 he was the grandson of a pharmacist of Saint-Beat, a little town in the Pyrenees, the son of a well-known mental physician, and the nephew of one of the physicians to the Charenton Asylum. He became an interne at the Paris hospitals, intending to devote himself to surgery, and entered for the competitive examination for the assistant-demonstratorship in anatomy. Just before the examination, however, he was attacked by diphtheria which left him temporarily paralysed and unable to pursue the competition. In the following year, however, he was made assistant demonstrator and afterwards prosector. His thesis for the degree of Doctor was entitled "Rupture of the Middle Meningeal Artery; Cerebral Hæmorrhage consecutive to Injuries of the Skull." This obtained the silver medal in 1881, and he had been led to choose this subject from the circumstances attending the death of his father who was shot in the head with a revolver by a lunatic. Dr. Marchant became surgeon to the hospitals in 1886 and was principal surgeon at the Boucicault Hospital and afterwards at the Beaujon Hospital. He has left behind him numerous works on surgery. He was a most able surgeon and his death is much regretted by his many friends. Dr. Marchant was an officer of the Legion of Honour.

The Academy of Medicine.

On June 23rd the Academy of Medicine proceeded to elect a titular member in the section of surgical pathology in the place of Professor Panas. M. Kirmisson was elected with 71 votes, against five given to M. Segond, two to M. Quenu, and two to M. Schwartz. Two voting papers were unsigned. M. Narish of Smyrna and M. Hirschberg of Berlin were elected as foreign members.

July 7th.

Medical News.

SOCIETY OF APOTHECARIES OF LONDON.—At the Primary Examination the following candidates passed in the subjects indicated:—

PART I.

Chemistry.—J. M. Burke, Cork and Middlesex Hospital; C. J. Evans, St. Bartholomew's Hospital; and J. N. Turner, Guy's Hospital.

Materia Medica and Pharmacy.—L. W. Bradshaw, Leeds; E. G. Brisco-Owen, Cardiff; and R. P. Wylde, Manchester.

PART II.

Anatomy.—H. R. Coombes, Westminster Hospital; C. E. Pring, Royal Free Hospital; C. A. E. Ring, Guy's Hospital; G. W. Simpson, Bristol; and T. R. Williams, Cardiff and Glasgow.

Physiology.—A. J. K. Brayton, Liverpool; C. G. Grey, St. Bartholomew's Hospital; R. D. Neagle, St. Mary's Hospital; C. A. E. Ring, Guy's Hospital; and T. R. Williams, Cardiff and Glasgow.

UNIVERSITY OF BIRMINGHAM.—The following is a list of successful candidates in the Faculty of Medicine:—

I. *Degree of Doctor of Medicine.*—(*a*) Official: John Jameson Evans and William Alexander Potts. (*b*) Associate: Thomas Law Webb. (*c*) Past Students of the Birmingham Medical School: James Ronald Polson, William Sisam, and Arthur Allen Deykin Townsend.

II. *Degree of Master of Surgery.*—(*a*) Official: Charles Albert Leedham-Green.

III. *Degrees of Bachelor of Medicine and Bachelor of Surgery.*—(*a*) Official: Frank Redmayne Greenwood and James Coole Kneale. (*b*) Associate: Arthur Stanley Barnes, John Furneaux Jordan, Sidney Herbert Perry, and William Henry Wynn. (*c*) Past Students of Birmingham Medical School: Henry Baylis, Cordley Bradford, Harold Corser Brown, Ernest Frederick Wharton Bywater, and John Read Pooler.

IV. *Fourth Examination for the Degrees of M.B., Ch.B.*—Class II.: William George Aviss, William Cook, Leonard George Joseph Mackey (scholarship), George Edward Victor Morris, and Fred Newton Walsh.

V. *Third Examination for the Degrees of M.B., Ch.B.*—Class II.: Robert Wallace Aitken, Reginald Hudson Astbury, Edward Lancelot Bunting Francis Reginald d'Alton Glissan, Helen Gertrude Greener, Lionel Chattock Hayes, William Claude Horton, William Cuthbert Houghton, Henry Percy Pickerill, Thomas Holmes Ravenhill, and Norman John Lancelot Rollason.

VI. *Second Examination for the Degrees of M.B., Ch.B.*—Class II.: Arthur Addison Sanders (scholarship) and Francis Brett Young.

VII. *First Examination for the Degrees of M.B., Ch.B.*—Class I.: John Dale (scholarship). Class II.: Harvey Atkins Evans, James Fenton, George Kennaway Mallory, and Rupert Wesley Thompson.

VIII. *Degree of Bachelor of Dental Surgery.*—(*a*) Past Students of the Birmingham Dental School: Arthur Hughes Parrott and Alfred William Wellings.

IX. *Degree of B.Sc. in Public Health.*—Henry Prince Motteram.

X. *Diploma in Public Health.*—Parts I. and II.: Albert Henry Bygott. Part I.: John Ronald Currie.

TRINITY COLLEGE, DUBLIN.—At examinations held at Trinity term the following candidates were successful:—

PREVIOUS MEDICAL EXAMINATION.

Botany and Zoology.—William Pearson, Richard G. S. Gregg, James F. Clarke, George Halpin, George F. Graham, Richard J. Attridge, Robert de C. Wheeler, Thomas T. H. Robinson, Edmond H. Sheehan, Robert B. Jackson, Wilfred J. Dunn, Henry Goodbody, Julian B. Jones, Robert Magill, Charles K. Denham, Gerald Mecredy, Frederick Stevenson, John H. Askins, Claude Powell, James B. Stewart, and Hill W. de V. White.

Physics and Chemistry.—William Pearson, Allman J. Powell, Richard G. T. Gregg, Edward C. Stoney, James C. C. Hogan, George F. Graham, Charles T. Atkinson, Robert E. Wright, William S. Thacker, Rev. Thomas Brook, Wilfred J. Dunn, Wilfred L. Hogan, Frederick Stevenson, Charles B. Jones, Desmond Drew, Bethel A. H. Solomons, Edward J. H. Garston, George B. M'Hutchison, David Miller, and Robert de C. Wheeler.

Anatomy and Institutes of Medicine.—John D. Sands, Samuel G. S. Haughton, Ralph S. Oldham, Alfred G. Alexander, Cecil Conygham, Edward Gibbon, Basil Brooke, Thomas O. Graham, Cyril H. M'Comas, Percy B. Egan, Edward D. Attwell, James M. Harold, William R. Galwey, John Gray, John Murdoch, Joseph P. R. Poch, Ernest C. Crawford, George Dougan, James E. M'Farlane, Henry B. Leech, and Thomas B. W. MacQualde.

FINAL EXAMINATION.

Section B.—James G. Wallis, Charles J. Coppinger, George B. M'Caul, Herbert St. M. Carter, Herbert Stone, Keith R. C. Hallowes, Gerrard A. Crowley, Henry E. M'Cready, Thomas J. T. Wilmot, John C. Hall, Thomas C. A. Sweetnam, Cecil J. Wyatt, Frederick W. Bury, Arthur W. Goldsmith, and Harold T. Marrable.

The following prize and scholarships have been awarded: *Prize.*—Medical Travelling Prize: Richard A. Stoney, M.B., B.Ch., B.A.O. *Scholarships.*—Fitzpatrick Scholarship: Seaton Pringle. Anatomy and Institutes of Medicine: George Mac G. Millar (Trinity College scholarship) and Henry H. A. Emerson (Stewart scholarship). John Mallet Purser Medal: John D. Sands.

DEATHS OF EMINENT FOREIGN MEDICAL MEN.—The deaths of the following eminent foreign medical men are announced:—Dr. Carl Gussenbauer, professor of surgery in Vienna.—Dr. Rudolf Juergens, Custos of the Berlin University Pathological Institute, at the age of 60 years. His published papers which are best known are those dealing with amyloid degeneration and with the connexion between the migration of protozoa in the tissues and the formation of tumours.

DONATIONS AND BEQUESTS.—By the will of Mr. Alfred Henry Miller £500 are bequeathed to the North Devon Infirmary, £300 to the Barnstaple and North Devon Dispensary, and £200 to the Lock Hospital.—Under the will of Colonel Thomas Thorneycroft the Wolverhampton and Staffordshire General Hospital will receive £500.—Lady Brodie, widow of Sir Thomas Brodie of Forfar, has under her will and subject to the discretion of her trustees left many thousand pounds to be divided amongst charitable institutions. The Edinburgh Royal Infirmary, the Falkirk Cottage Hospital, the Royal Edinburgh Hospital for Sick Children, and the Longmore Hospital of the Royal Association for Incurables, Edinburgh, will probably benefit largely.—The late Miss M. A. Kirby of Bristol has bequeathed £1000 to the Bristol Grammar School, £2000 each to the Bristol General Hospital and the Bristol Royal Infirmary, £1000 to the Royal Sailors' Rest, £500 each to Müller's Orphanage and to Mr. Barnardo's Home, free of duty, and "in memoriam" of her uncle, the late Mr. Charles Highett, M.R.C.P. Edin., &c., formerly mayor of Bristol.

THE ROYAL COLLEGE OF SURGEONS OF ENGLAND.

ELECTION OF PRESIDENT.

On July 9th Mr. John Tweedy was elected President and Mr. Henry Morris and Sir Alfred Cooper were elected Vice-Presidents.

THE TREATMENT OF LONDON SEWAGE.—At the annual meeting of the Incorporated Association of Municipal and County Engineers held on June 25th at Kensington Professor F. Clowes, D.Sc., gave an account of the experiments carried on at the London County Council sewage works at Beckton in regard to the bacterial treatment of the contents of the London sewers. A coke bed having an extent of one acre was laid down in 1893 and has since been in regular use, while the composition, thickness, and general management have been varied from time to time in order that the conditions of maximum efficiency might be arrived at. The general results obtained may be thus summed up. Hard coke in fragments of about the size of a walnut supplies the best material and the thicker the layer the more satisfactory is the effluent. A thickness of about 12 feet is now employed with great success. The sewage may be distributed over the bed either with or without preliminary treatment, but it is found to be better to pass it through a sedimentation tank in order that particles which would tend to choke the bed may settle out. One hour is occupied in filling the bed, which after two more hours is drained, this process taking one hour. The bed is then exposed to the air for two hours and the above routine again proceeded with. The degree of purity thus attained is high, for it is found that the effluent does not become offensive even after being kept for many days at a temperature of 80° F. It will be observed that no unseemly haste has characterised the County Council's methods of investigation. Since, however, a trustworthy process for dealing with sewage is now apparently available we may hope that it will be employed in due course at the southern outfall also, for, as we have personally had occasion to notice, the effluent poured into the Thames at Crossness after treatment of the sewage by the primitive methods adopted there falls considerably short of the high standard reached at Beckton.

CONVERSAZIONE AT KING'S COLLEGE, LONDON.—The council and staff of King's College, London, entertained their friends at a conversazione which was held in the College buildings in the Strand on July 1st. The company was very numerous and the exhibits were sufficiently interesting to attract the attention of the unscientific portion of the guests. In the bacteriological laboratory the trypanosoma which Dr. Aldo Castellani had found in cases of sleeping sickness was shown, but the general public seemed to care more for the exhibits comparing the number of microbes in good drinking-water, in Thames water, and in sewage. In the physiological laboratory some microscopical preparations exhibited by Professor W. D. Halliburton attracted the close inspection of the students of physiology and in the Wheatstone physical laboratories the whirling speculum top and experiments in wireless telegraphy were very popular. Before the conversazione Sir William R. Anson, M.P., warden of All Souls, Oxford, distributed the prizes to the successful students of the institution and in the course of a few remarks at the close of the ceremony expressed his opinions on education in connexion with study. The education of the present day, he said, was characterised by novelty and by the direction it took towards practical utility. The conflict between the advocates of the old and the new schools of education had reached an acute stage. The adherents of the old school urged that the new studies were very expensive, that they neither stimulated the mind nor enlarged the mental vision, and that they could not be regarded as educational in the true sense of the word. Those who upheld the new school contended that their opponents were merely engaged in literary elegancies, that their supposed education was nothing but a drawing-room pastime, and that the results of their methods were of no value to anyone in after life. Sir W. R. Anson considered that both were wrong and he then proceeded to comment on the offer of money which had been made to the London County Council to form a great technicological institute. He warned his hearers that technicology did not represent the sum total of human interest and pointed out that there were other departments in the field of knowledge in which in their leisure hours he advised them to wander. They should all endeavour to keep their minds open for other interests apart from those which engrossed the main business of their lives.

UNSOUND MEAT.—At the Radstock (Somerset) petty sessions held on July 2nd a butcher of Frome was summoned for exposing for sale 20 pieces of meat which were unfit for human food. The defendant had been previously convicted for a similar offence and the magistrates now sentenced him to three weeks' imprisonment.

GUY'S HOSPITAL: UNVEILING OF THE SOUTH AFRICAN MEMORIAL, OPENING OF THE "WILLS" LIBRARY, AND DISTRIBUTION OF PRIZES.—The governors and staff of Guy's Hospital assembled in the court-room of the hospital on July 3rd, where they welcomed Sir Frederick Wills, M.P., and conducted him to the "Wills" library which he then formally opened. The company then passed on to the theatre in the new school buildings, where the treasurer, Mr. Cosmo Bonsor, after the Dean had read the annual report of the medical and dental schools, presented a silver key to Sir Frederick Wills as a souvenir of the opening of the library and invited him to distribute the prizes. Sir Frederick Wills then presented the prizes to the successful students, and in the course of an address which he delivered afterwards said that the question of the endowment of medical schools was not sufficiently understood by the public. As a rule if anyone subscribed to a hospital the only thing he thought of was that he was doing something for the poor. The fact was overlooked that no good hospital could exist without a medical school because it was the medical school that provided the medical men to carry on the work of the hospital. The public were moreover indebted to the medical schools for great advances in medical and surgical science, and there was no doubt that medical schools should be endowed. General Sir Richard Harrison then announced that the South African memorial had been unveiled. The memorial was erected in memory of those students of Guy's Hospital who had fallen in the war in South Africa. General Harrison said that the care of the memorial had been handed over to Mr. Cosmo Bonsor, the treasurer of the hospital, as representing the corporation. The proceedings concluded with a vote of thanks to Sir Frederick Wills and to Sir Richard Harrison, after which the hospital and school buildings were thrown open for the inspection of the public. Especial interest was naturally taken in the "Wills" library which occupies the whole of the ground floor of a building adjacent to the new physiological department, these two forming part of a scheme for remodelling the school buildings and museums of which the physiological building forms the first instalment and the library the second. All the bookcases and panelling are of beautifully fitted and carved oak and the work is of the most finished description. The bookcases are arranged to form bays for students to work in, each bay being lighted by a separate window and containing a large oak reading-table. There is accommodation for some 10,000 volumes. The library is lighted by electricity and heated by water radiators. For this magnificent gift the school is indebted to the generosity of Sir Frederick Wills, Bart., M.P., he having given to the governors the sum of at least £6000 for the purpose.

COUNTY OF DURHAM MEDICAL UNION.—The above union held its fifth annual meeting on June 29th at the town-hall, Durham. Dr. Edward Jepson (Durham), President of the union, was in the chair and in his opening address referred to the fact that the union had since the last general meeting lost two of its members by death—namely, Dr. G. W. Ellis of Bishop Auckland and Dr. Alfred F. S. Pearcey of Sunderland, to whose families it was resolved that letters of condolence should be forwarded. He then reminded the members that a subscription was opened at their last meeting for the purpose of purchasing a present for the daughter of one of their secretaries (Mr. Shepherd) on her marriage. The articles selected were a rose bowl suitably inscribed and a clock, which afforded very great surprise and pleasure to Miss Shepherd (now Mrs. Duncan) as well as to her father. Dr. Jepson, continuing, stated that the membership of the union had now reached 267. Some awkward difficulties had to be settled, but they were concerned not so much with contract practice as with irregular and unqualified practice. Reference was also made to the reorganisation of the British

Medical Association and the members were cautioned by Dr. Jepson not to be carried away by the voice of any prophet who said that the union was not now necessary. He maintained that the union was necessary until such time as the British Medical Association could show something equal to it. He mentioned that Mr. J. S. Whitaker at his own wish had come from London to attend the meeting and to tell them something about the British Medical Association. On the motion of Dr. Hunter, seconded by Mr. R. Stuart, Dr. Jepson was re-elected President of the union for the fifth year in succession. Dr. Murphy was re-elected Vice-President and Messrs. Graham and Shepherd were re-elected secretaries, treasurers, and solicitors for the ensuing year. In responding Mr. Shepherd thanked the members for their kindness in making a wedding present to his daughter who very much appreciated the gift. The report of the council was then submitted to the meeting. It contained reference to the fact that at several collieries attempts had been made to reduce the fortnightly subscriptions to 6*d.*, but that the firm determination of the practitioners concerned not to give way, supported by the council, had resulted in the applications being withdrawn. The number of friendly society medical associations in the county, it was stated, had not increased. Reference was also made to the work of the judicial committee which had investigated several cases, and to the passing of the Midwives Bill, as to which the council had suggested certain amendments which had been embodied in the Act. At the conclusion of the ordinary business, on the invitation of the President, Mr. Whitaker, the organising secretary of the British Medical Association, spoke on behalf of the great desirability of there being only one organisation and argued that one association or union in one particular county could not do much good to the profession unless it could keep in touch with other unions, and if all these unions could be federated and blended then the whole strength of the will of the profession could be used to some definite purpose. Instead of developing a new association he thought it would seem better for existing unions to avail themselves of the existing British Medical Association which was now placed on a new basis and had a fresh constitution. With regard to the County of Durham Medical Union, he suggested that by degrees there might be a transition from the union to a combination of divisions of the British Medical Association; he thought that the union might form a sub-branch of the North of England Branch, that the local committees might become divisions, and that the Durham county divisions might keep together and arrange their meetings as they thought proper, making special arrangements so as to retain the same officials as hitherto.

Parliamentary Intelligence.

HOUSE OF LORDS.

MONDAY, JULY 6TH.

The Physique of the Nation.—Further Inquiry Promised.

The Earl of MEATH called the attention of the Government to the report of the Royal Commission on Physical Training in Scotland and to the report of the Inspector-General of Recruiting for 1902, in which it is stated that "the one subject which causes anxiety in the future as regards recruiting is the gradual deterioration of the physique of the working-classes from which the bulk of the recruits must always be drawn," and asked whether the Government would be prepared to issue a Royal Commission or a committee of inquiry with a view of ascertaining whether the poorer populations in our large towns are exposed to conditions which, if continued, must inevitably contribute to a low national standard of physical health and strength, seeing that if such be the case it would constitute a grave national peril.

The Bishop of RIPON said that while he was all in favour of inquiry he did not take a pessimistic view of the situation. He found that there had been an improvement in the stature and vigour of the population as compared with 100 years ago. It was said that the stature of the race had risen within some 30 years from five feet seven and a half inches to five feet eight and a quarter inches. Longevity was an indication of the physique of a nation, and a child born to-day, if a boy, could look forward to four years longer life than could the boy of half a century ago, and, if a girl, to six years longer life than the girl of the day when her grandmother was born. There was in the expectation of life at the present time such an increase as to show greater physical stamina and power of resistance. Medical science and sanitary improvements had helped forward physical development, and we should be full of gratitude that we lived in an age when there were such opportunities of living healthy lives. But there were features on the other side which should make us cautious lest certain new conditions should arise which should undermine the physical vigour of our race. Were we sending out to the colonies in sufficient quantity and quality a race calculated to hold this great empire together and to fulfil what we all believed to be the duties and destinies of our people? Experts who had gone carefully into the matter had shown that the birth-rate was decreasing in an alarming degree. Families were becoming smaller and smaller and there was a sensible diminution in the number of children born. In face of this we should be making a great mistake to say that there was no danger ahead.

The Duke of DEVONSHIRE, replying on behalf of the Government, intimated that he had received the following opinion from the Local Government Board: "The Bishop of Ripon, in his letter to the Duke of Devonshire, speaks also of a retrogression or retardation of the increase of the population. This, however, is not so. At each census during the last 90 years there has been a decennial increase of the population, varying from 11·6 to 18·0 per cent. At the last census, 1901, the increase was 12·2, compared with 11·7 at the preceding census. The population was over 3,500,000 more than in 1891. It is the fact that the birth-rate has declined during the last quarter of a century, but during the last five years there has been a tendency to a rise in the marriage-rate, and it remains to be seen whether this is arresting the fall in the birth-rate. There has, no doubt, been a growth of emigration from country to town, with the result that the increase of the town population has been much greater than the increase of the country population. The increase of the country population, including urban districts with less than 5000 inhabitants, during the last decennial period was just over 3 per cent. It has been suggested that the number of children in the average family is decreasing, but there are no official statistics on this subject and any statement upon it must be conjectural." With regard to the alleged deterioration in the physique of the working classes the Duke of Devonshire said that the figures of the Inspector-General of Recruiting and the conclusion based upon them had been examined by the officials of the Local Government Board and they concurred in the view that there was no evidence of deterioration in the physique of the town working classes in this country, but rather that it had improved of recent years and that if a better class of men did not enlist it was because more permanent and lucrative employment was offered in civil life. But though it was not at all necessary to believe that there was actual deterioration going on in respect of any class of the population there was a question presented by these figures which was sufficiently grave to merit the fullest consideration and inquiry. The subject had recently been brought before the Secretary of State for War in a minute by the Director-General of the Army Medical Service which he proposed to lay upon the table. That officer said:—"The rejection of one out of every three men examined by the medical recruiting officer points clearly to poorness of recruiting material," and this did not represent the whole of the physical unfitness among men who sought to become soldiers. A large number of men were rejected by the recruiting sergeants and were never medically inspected. This was a condition of things which was serious not only from the military point of view but from the industrial point of view. As another passage in the minute he had mentioned said, "If these men are unfit for military service, what are they fit for?" And it stated that the rising generation in all classes below the artisan class included a large number of men of very low physique. Looking to the very stringent requirements of such a profession as the military and the high standard of physique necessary to make a good soldier it might be hoped that a large number of these rejected candidates for enlistment were not altogether unfitted for some useful employment in civil life. But undoubtedly it was a serious fact that considerably more than one in three of those who offered themselves for enlistment were medically unfit. He did not understand that the Royal Commission on Physical Training in Scotland had arrived at any definite conclusions as to the deterioration or otherwise of any class of the population, but they said that there was "an undeniable degeneration of individuals of the classes where food and environment are defective." These questions had been brought under the attention of the Secretary of State for War and he had been in communication with the Home Office and the Local Government Board. These departments were all agreed that further and early inquiry of a concerted character was most necessary and his lordship thought it was extremely likely that inquiry by Royal Commission would be found to be the most desirable form of inquiry. But they were not disposed to think that the immediate appointment of that Royal Commission would be desirable. They were not yet in possession of all the necessary facts. The reports of the Registrar-General issued after every census were in course of preparation and had not yet been completed. Further, there would be no advantage in appointing a Royal Commission until the scope of its inquiry and the terms of reference had been carefully considered. The Secretary of State for War and the Home Secretary proposed to confer in the first instance with the medical profession through the councils of the Royal Colleges of Physicians of London and Surgeons of England and to consult with them as to the best means of obtaining information, not so much as to the extent, but, what was more important, as to the causes of this undoubted physical deficiency existing in some part of the population and as to the best means of remedying those deficiencies. They proposed to consult these bodies as to whether, in the first place, the appointment of a Royal Commission would be desirable and, if so, what should be the reference to it and what should be its composition. When these preliminary inquiries had been completed he thought that no time should be lost in taking further steps.

TUESDAY, JULY 7TH.

Lunacy Law Reform.

On the motion of Earl CARRINGTON a Bill was read a second time to authorise the London County Council to provide receiving houses for the detention, pending examination, of persons supposed to be of unsound mind.

HOUSE OF COMMONS.

THURSDAY, JULY 2ND.

Inoculation for Plague in India.

Mr. WEIR asked the Secretary of State for India whether, in order to judge of the value of the plague serum inoculation, he would arrange for a return to be kept of all persons inoculated and of those who subsequently succumb to plague.—Lord GEORGE HAMILTON replied: Returns of the kind referred to are already maintained in most provinces. I am in communication with the Viceroy with the object of securing in future returns such increased completeness and accuracy as the circumstances permit.

FRIDAY, JULY 3RD.

The Employment of Children.

The House discussed on report the Bill enabling local authorities to make by-laws regulating the employment of children. An attempt was made to make the Bill compulsory but it proved unsuccessful. The Home Secretary moved to omit the subsection in Clause 2 which proposed that "no licence for street trading shall be granted to girls under 16 years of age, nor shall any girl under 16 be engaged in street trading without a licence," and to insert in its place the following: "The local authority in making by-laws under this section shall have special regard to the desirability of preventing the employment of girls under 16 in places or under conditions prejudicial to morality." The proposed change was discussed at great length and eventually it was carried, the new subsection being, however, made to read, "The local authority in making by-laws under this section shall have special regard to the desirability of preventing the employment of girls under 16 in streets and public places."

Phthisis among Paupers.

Mr. MANSFIELD asked the President of the Local Government Board whether he would give instructions to Poor-law inspectors to report as to the numbers of cases of phthisis there are in each workhouse visited by them; whether or not such cases are isolated; and whether such cases are receiving special treatment, such as the open-air treatment, or in what way they are being treated as to diet, medicines, and surroundings.—Mr. LONG replied: I propose to give instructions to the effect that each Poor-law inspector shall include in the report made by him after his ordinary inspection of a workhouse particulars as to the number of cases of phthisis there and I am considering what further particulars on the subject should be added.

The Admiralty and the Metropolitan Asylums Board.

Mr. TALBOT asked the Secretary to the Admiralty whether his attention had been called to the condition of the *Exmouth* training ship, now under the management of the Metropolitan Asylums Board, from which in the year 1901 151 boys were sent to the Royal Navy, as against 160 from all other training ships other than industrial and reformatory ships; and whether, in view of the service thus rendered to the navy the Admiralty could assist the Metropolitan Asylums Board by placing some other ship at its disposal.—Mr. ARNOLD FORSTER replied: The attention of the Admiralty has been called to this matter. One vessel offered by the Admiralty has already been inspected on behalf of the Metropolitan Asylums Board but was not considered suitable. The question whether there is another ship which can be placed at its disposal is receiving careful consideration, but owing to the very limited number of vessels that could possibly be suitable for a purpose of this kind it is feared that it may be found impracticable to meet the wishes of the Board.

MONDAY JULY 6TH.

Lunacy and Bad Whisky.

Mr. MACVEAGH asked the Chancellor of the Exchequer whether his attention had been called to the inquiry instituted by the corporation of Glasgow into the connexion between the increase of lunacy and drunkenness; whether he was aware that it was suggested that the increase of lunacy in this respect was due to the inferior quality of the spirit now sold in lieu of genuine malt whisky; and whether the Government officials would give any assistance in this inquiry.—Mr. RITCHIE replied: I have no official information on the subject of the inquiry mentioned. If invited to do so by the corporation of Glasgow the Inland Revenue officials would be happy to supply such information as their records and experience may enable them properly to give.

The Ingredients of Whisky.

Mr. MACVEAGH asked the Chancellor of the Exchequer whether he would cause instructions to be issued to the Excise officials to prevent the use of beet molasses, decayed and damaged maize, the refuse of the sugar refineries, and other such inferior and injurious substances in the manufacture of patent still spirit for potable purposes; and whether he was aware that such spirit distilled in England was that which was now almost exclusively used in the tied houses owned by brewers and sold to the public as Scotch whisky.—Mr. RITCHIE replied: The Board of Inland Revenue has no authority to interfere with the discretion of distillers as regards the materials used by them. I have no reason to believe that materials injurious to health are used in the distilleries of the United Kingdom and I am satisfied that the hon. member's allegations with regard to tied houses owned by brewers is an unwarrantable reflection upon a trade that, with possibly a few rare exceptions, is, in my opinion, honestly and honourably conducted.

Mess Allowances in the Royal Army Medical Corps.

Dr. THOMPSON asked the Secretary of State for War if he had been able to equalise the allowances of captains of the Royal Army Medical Corps with those possessed by lieutenants of the same corps who are attending the Military Medical College in London.—Mr. BRODRICK, in reply, said: The question of the grant of mess allowance to captains attending the Medical College has been thoroughly considered and it has not been found possible to make this concession.

Trouble with Vaccination Officers.

Mr. FULLER asked the President of the Local Government Board whether he was aware that a medical inspector in his department has visited the Trowbridge and Melksham union and has threatened the vaccination officers of that union with dismissal if they did not institute legal proceedings against defaulters under the Vaccination Acts without the consent of the guardians; and if so, would he state whether the inspector had taken this course in pursuance of instructions from the Local Government Board or of regulations as to his duties, and if the latter where such regulations are laid down.—Mr. LONG replied: A medical inspector of my department visited the union and reported to me that both the vaccination officers refused to take proceedings in cases of default under the Vaccination Acts. I am not aware that he threatened them with dismissal. On receipt of the report I wrote to the vaccination officers pointing out that I could not permit of further delay in their performing their duties in this matter and I requested to be informed definitely whether they were prepared in future to carry out their duties, including the prosecution of persons in default. The replies of the vaccination officers being unsatisfactory I have called upon them to resign.

Underground Kitchens.

Mr. KEIR HARDIE asked the Home Secretary whether he proposed to introduce this session such legislation as will place underground kitchens in hotels and restaurants and other refreshment houses under the same conditions as already apply to underground bakehouses in view of the report made by Dr. Collingridge, the medical officer of health to the City of London, showing that there are 135 underground kitchens in London which are unfit for the purpose of cooking food.—Mr. AKERS DOUGLAS: I am advised that the kitchens of restaurants are "work-places within the meaning of the Public Health Acts and Section 2 of the Factory and Workshop Act, 1901, and therefore local authorities, including the Court of Common Council of the City of London, to whom, if I understand aright, the report mentioned in the question was made, have considerable powers for the enforcement of sanitation in such places. I am not prepared to introduce legislation applying to these kitchens the provisions of Section 101 of the Act of 1901, which I understand to be the honourable member's suggestion.

WEDNESDAY, JULY 8TH.

Use of Humanised Lymph in Scotland.

Mr. WEIR asked the Lord Advocate, having regard to the fact that the use of humanised vaccine lymph has been discontinued in England on the recommendation of the Royal Commission, and that during the year 1902 the Central Vaccine Institution for Scotland supplied on application from parochial vaccinators in various parts of Scotland 312 tubes of humanised lymph, would he consider the expediency of issuing a circular to parochial vaccinators throughout Scotland recommending the use of glycerinated calf lymph.—The LORD ADVOCATE replied: The proportion of calf-lymph issued by the Vaccine Institution in Scotland shows that the use of that lymph is increasing and the Secretary for Scotland, after consulting the Local Government Board, is of opinion that under all the circumstances it is not at present necessary to issue any circular on the subject. Parochial vaccinators have complete discretion in the matter.

Appointments.

Successful applicants for Vacancies, Secretaries of Public Institutions, and others possessing information suitable for this column, are invited to forward to THE LANCET *Office, directed to the Sub-Editor, not later than 9 o'clock on the Thursday morning of each week, such information for gratuitous publication.*

BEALY-SMITH, RICHARD LEONARD, L.R.C.P. Lond., M.R.C.S., has been appointed Certifying Surgeon under the Factory Act for the Bishopstoke District of the County of Hants.

BLUMFELT, J., M.D. Cantab. has been appointed Honorary Anæsthetist to the National Dental Hospital, Great Portland-street.

BOYES, AUGUSTE, M.B., Ch.B. Glasg., has been appointed Resident Medical Officer to the East Poorhouse and Hospital, Dundee.

CAROLAN, JAMES FREDERICK, M.R.C.S., has been appointed Public Vaccinator of Auckland, New Zealand.

CLEMONS, GEORGE ERNEST, M.D. Edin., has been appointed ex-officio Member of the Board of Management of the Launceston Hospital, Tasmania.

CRAIG, WILLIAM BANNERMAN, M.B., M.S. Edin., has been appointed House Surgeon at the Sanatorium at Rotorua, New Zealand.

FLYNN, JOHN, L.R.C.P. & S. Edin., L.F.P.S. Glasg., has been appointed Health Officer of Queensland.

GREENE, W. H. CLAYTON, M.B., B.S. Cantab., F.R.C.S. Eng., L.R.C.P. Lond., has been appointed Junior Surgeon to the French Hospital.

HOLMES, LOUIS SAENGER, L.R.C.S., L.R.C.P. Edin., L.F.P.S. Glasg., has been appointed ex-officio Member of the Board of Management of the Launceston Hospital, Tasmania.

HOSKING, ARCHER, M.B., M.S. Edin., has been appointed Public Vaccinator of Masterton, New Zealand.

JOHNSTON, G. A., L.R.C.P., L.R.C.S. Irel., has been appointed Certifying Surgeon under the Factory Act for the Ambleside District of the County of Westmorland.

KILBRIDE, JAMES, L.K.Q.C.P.I., M.R.C.S., has been appointed a Medical Referee under the Workmen's Compensation Acts, 1897 and 1900, and to act for the County of Kildare, Ireland.

ORMEROD, H. L., M.D. R.U.I., has been appointed Certifying Surgeon under the Factory Act for the Westbury-upon-Trym District of the County of Gloucester.

PARKER, CHARLES, M.B., C.M. Edin., has been appointed ex-officio Member of the Board of Management of the Launceston Hospital, Tasmania.

PERSHOUSE, FRANK, L.R.C.P. Lond., M.R.C.S., has been appointed Certifying Surgeon under the Factory Act for the Stamford-le-Hope District of the County of Essex.

ROBERTON, E., M.D. Edin., has been re-appointed a Senate's Member of the Board of Governors of the Auckland Grammar School, New Zealand.

SCOTT, ROBERT GILLESPIE, M.B., C.M. Edin., has been appointed a Member of the Court of Medical Examiners, Tasmania.

SPOONER, WILLIAM CASWELL, M.B., B.S. Edin., has been appointed Certifying Surgeon under the Factory Act for the Blandford District of the County of Dorset.

TAYLOR, DUDLEY C. P., M.R.C.S. Eng., L.R.C.P. Lond., has been appointed Medical Officer and Public Vaccinator to the Sibsey District of the Boston (Lincs.) Union.

WATSON, C. GORDON, F.R.C.S. Eng., has been appointed Junior Demonstrator of Anatomy at St. Bartholomew's Hospital.

Vacancies.

For further information regarding each vacancy reference should be made to the advertisement (see Index).

BATH ROYAL UNITED HOSPITAL.—House Surgeon. Salary £80 per annum, with board, lodging, and washing.

BIRMINGHAM AND MIDLAND HOSPITAL FOR SKIN AND URINARY DISEASES, John Bright-street, Birmingham.—Clinical Assistant for three months. Honorarium at rate of 52 guineas per annum.

BIRMINGHAM, UNIVERSITY OF.—Walter Myers Travelling Studentship. Value £150.

CARDIFF, UNIVERSITY COLLEGE OF SOUTH WALES AND MONMOUTHSHIRE.—Professor of Anatomy. Salary £350 per annum.

CHELSEA INFIRMARY, Cale-street, S.W.—Second Assistant Medical Officer. Salary £70 a year, with board, apartments, &c.

COLCHESTER, EASTERN COUNTIES' ASYLUM FOR IDIOTS, IMBECILES, AND THE FEEBLE-MINDED.—Resident Medical Attendant, unmarried. Salary £100 per annum, with apartments, board, and washing.

DERBYSHIRE ROYAL INFIRMARY, Derby.—Assistant House Surgeon for six months. Salary £30, with board, residence, and washing.

DEVONPORT, ROYAL ALBERT HOSPITAL.—Assistant House Surgeon for six months. Salary at rate of £50 per annum, with board, lodging, and washing.

EAST SUSSEX COUNTY ASYLUM, Hellingly.—Third Assistant Medical Officer, unmarried. Salary £160 a year, with board, lodging, washing, and attendance.

GROVE HALL ASYLUM, Bow, London, E.—Assistant Medical Officer. Salary at rate of £150 a year, with board, apartments, attendance, and washing.

GUY'S HOSPITAL MEDICAL SCHOOL.—Gordon Lecturer in Experimental Pathology.

ISLE OF MAN GENERAL HOSPITAL AND DISPENSARY, Douglas, Isle of Man.—Resident House Surgeon, single. Salary £82 a year, with board and washing.

JARROW-ON-TYNE, PALMER MEMORIAL HOSPITAL (FOR ACCIDENTS).—House Surgeon, unmarried. Salary £150 per annum, with board and residence.

KENT AND CANTERBURY HOSPITAL—Second Honorary Physician.

LIVERPOOL DISPENSARIES.—Assistant Surgeon, unmarried. Salary £100 per annum, with board and apartments.

MANCHESTER, ANCOATS HOSPITAL.—Resident House Physician. Salary £80, with board, &c.

METROPOLITAN EAR, NOSE, AND THROAT HOSPITAL, Grafton-street, Tottenham-court-road, W.—Assistant Surgeon, Anæsthetist, and Clinical Assistants.

NOTTINGHAM GENERAL DISPENSARY.—Assistant Resident Surgeon, unmarried. Salary £160 per annum, increasing, with apartments, attendance, light, and fuel.

ORKNEY, PARISH OF ROUSAY AND EGILSHAY.—Medical Officer. Salary £51 per annum.

PRESTON, LANCASHIRE, COUNTY ASYLUM, Whittingham.—Assistant Medical Officer, unmarried. Salary £175, with apartments, board, washing, and attendance.

SHEFFIELD, CITY OF.—Medical Officer of Health. Salary £700 per annum.

SHEFFIELD ROYAL INFIRMARY.—Honorary Surgeon.

SOMERSET AND BATH ASYLUM, Cotford, Taunton.—Assistant Medical Officer, unmarried. Salary £160 per annum, increasing to £200, with apartments, board, &c.

SOUTHAMPTON, ROYAL SOUTH HANTS AND SOUTHAMPTON HOSPITAL.—Junior House Surgeon. Salary £60 per annum, with rooms, board, and washing.

STATE OF SARAWAK.—Medical Officer, unmarried. Salary $300 a month and free quarters.

STOCKPORT INFIRMARY.—Assistant House and Visiting Surgeon. Salary £80 per annum, with board, washing, and residence. Also Junior Assistant House Surgeon for six months. Salary at rate of £40 per annum, with board, washing, and residence.

TOTTENHAM HOSPITAL, London, N.—Two Honorary Anæsthetists.

VICTORIA HOSPITAL, Burnley.—Resident Medical Officer. Salary £90 per annum, with residence, board, and washing.

VICTORIA HOSPITAL FOR CHILDREN, Tite-street, Chelsea, S.W.—House Physician for six months. Honorarium of £25, with board and lodging. Also Medical Radiographer. Honorarium of £31 10s. per annum.

WALLASEY DISPENSARY AND VICTORIA CENTRAL HOSPITAL, Liscard.—House Surgeon, unmarried. Salary £100, with apartments, board, and service.

WEST RIDING ASYLUM, Wadsley, near Sheffield.—Fifth Assistant Medical Officer. Salary £140, rising to £160, with board, &c.

WOLVERHAMPTON AND STAFFORDSHIRE GENERAL HOSPITAL.—Assistant House Surgeon for six months. Salary at rate of £75 per annum, with board, lodging, and washing.

THE Chief Inspector of Factories, Home Office, London, S.W., gives notice of vacancies as Certifying Surgeon under the Factory and Workshop Act, at Ruabon, in the county of Denbigh; at Belleek, in the county of Fermanagh; at Thame, in the county of Oxford; and at Glasgow, in the county of Lanark.

Births, Marriages, and Deaths.

BIRTHS.

COULTHARD.—On June 29th, at Bishop's Close, Aspatria, Cumberland, the wife of W. J. C. Coulthard, M.B. Edin., of a son.

LEVICK.—On July 5th, at Havant, to Mr. and Mrs. Ashwin, a daughter.

MARRIAGES.

COLEMAN—FRASER.—On June 30th, at the Church of the Holy Cross, Dundrum, James Byrne Coleman, C.M.G., F.R.C.P.Irel., to Maude, youngest daughter of George Alexander Lovat Fraser.

PETTY—TROUP.—On July 2nd, at St. Andrew's Church, Stoke Newington, David Petty, M.B. Aberd., to Dora Lilian, youngest daughter of Mr. Frederick William Troup.

DEATHS.

COSENS.—On June 28th, at Brockenhurst, Charles Henry Cosens, M.R.C.S., L.R.C.P. Lond., in his 45th year.

RAY.—On July 4th, at Beccles, James Ray, M.R.C.S., formerly of Lowestoft, aged 72 years.

N.B.—A fee of 5s. is charged for the insertion of Notices of Births, Marriages, and Deaths.

Notes, Short Comments, and Answers to Correspondents.

"QUE DIABLE ALLAIT IL FAIRE DANS CETTE GALÈRE?"

A CORRESPONDENT has sent us a copy of a paper entitled *Health and Strength*. This magazine calls itself "an illustrated monthly magazine devoted to subjects appertaining to health, strength, vitality, muscular development, food, clothing, and general care of the body," and has been brought under our unfavourable attention on previous occasions. The literary contents of the paper are of the sort usually met with in cheap little papers professing to expound the theories of physical culture to the public. There are some obvious truths, some comical errors, some great nonsense, some semi-nude photographs, and some letters from youths about their body measurements and about the advantages of reading *Health and Strength* and of attending certain "schools of physical culture" which are advertised in the same issue. The advertisements are also of the usual kind. Among these the "Good Health Supply Department" publishes a letter to show that every young married couple ought to read certain books "and greatly improve the health status of any family." Messrs. A. M. Richardson and Co. advertise a perfected electro-galvanic belt as making "the weak man become strong." The Magnetic Nerve Invigorator Company publish a puff of a thing which they call their "appareil magnétique" as a cure for "dyspepsia, emissions, and loss of memory." "Dr." T. R. Allinson, ex-L.R.C.P. Edin., who recently received such proper handling from the coroner of the Kingston Division of Surrey, advertises "Medical Essays in five volumes," "A Book for Married Women," "Pamphlets to Young Men," and other literary gems. A Mr. Macdonald Smith, who "interviews by appointment only," advertises that "complete all-round health of body and mind is readily, easily, and thoroughly attained by my system." He has booked new pupils for a course of six lessons in robust health at a sacrificial rate. Another advertisement recommends the "Self and Sex Series" of pamphlets. There is an advertisement of a book called "Marriage Guide: the Home Cyclopædia of Popular Medicine, Social and Sexual Science." Another advertisement is of a book entitled, "Confidential Talks with Husband and Wife," among the contents of which we notice such pleasant subjects as "The Relative Amorousness of Males and Females," "Children, Yes or No, If Not Why Not?", and "Old Age and Sexuality." Another advertisement sets out the scope of "The Red Hot Library." This is a complete set of ten books, the price of which is 14s. 6d., and the publishers are "The Health Culture Company," who give the same address as the "Magnetic Nerve Invigorator Company," 22, Budge-row, Cannon-street, E.C. We give this address not so much as a gratuitous advertisement of the companies as a reminder to our readers that we have already had occasion to notice these people. (See THE LANCET, Nov. 8th, 1902, p. 1297, an article entitled "The Sexual Quack.") There are also advertisements of belts and suspensory bandages for weak men and of free cures for rupture; there is an advertisement by the Natural Food Company, Limited, of a new drink invented by Mr. T. R. Allinson, and an offer on the part of the manager at Volta House, Rooms 2 and 3, 22, Budge-row, to deal in "soiled outfits, belt and scrotal." Our readers will allow that this is a fairly dirty assortment of material to be placed before the public. But the most astonishing thing in the whole magazine is a letter on page 216, for it actually purports to come from Dr. Alexander Haig, of 7, Brook-street, Grosvenor-square, W. The letter, which is signed "A. Haig," replies apparently to certain references that have been made in *Health and Strength* to his well-known work on uric acid and contains these words: "I should be happy to do what I can from time to time to answer questions." Dr. Haig is a Fellow of the Royal College of Physicians of London and we presume that that corporation will take note of his intention to associate himself with *Health and Strength*. For our part we think that Dr. Haig owes to his professional colleagues an explanation of this letter, supposing him to have written it. The writer appears to have seen the magazine, for he alludes to something upon page 86 of the March issue. Can he be Dr. Haig, and, if so, how did he come to find it possible to communicate with such a paper?

THE COOPERATIVE HEALTH SANATORIA COMPANY, LIMITED.

A CORRESPONDENT has sent us for comment a letter which has been circulated, we suppose, among medical men, but which has not, so far as we know, been given to the public. The document contains proposals for the formation of a limited liability company to carry on the business of owners of sanatoriums. It is suggested that by an amalgamation of sanatoriums a far greater degree of efficiency in the treatment of any particular disease would speedily be acquired, while provision could be made for chronic cases and by coöperation cheaper rates of payment could be accepted. In this way treatment in sanatoriums could be brought within the reach of a less opulent class of patients than those who now enjoy it. So far so good, but the gentleman to whom applications for shares is to be made offers

to make cooperative principles so far-reaching as to distribute among the patients "a certain percentage of the profits" and among medical men "a certain proportion of the profits." The patient's bonus is to vary with the time of his sojourn in the sanatorium and will amount to a bribe to remain ill. We doubt the wisdom of this idea and we have no doubt whatever that it is wrong to offer to medical men a pecuniary inducement to draft their patients to any particular sanatorium or group of sanatoriums. Therefore we do not advise any of our readers whom the circular letter may have reached to join in the venture.

TREPHINING AMONG THE ANCIENT TARAHUMARES.

THE following passage is extracted from "Unknown Mexico: a Record of Five Years' Exploration among the Tribes of the Western Sierra Madre, in the Tierra Caliente of Tepic and Jalisco, and among the Tarascos of Michoacan," recently published by Messrs. Macmillan and Co. The author is Mr. Carl Lumholtz, Member of the Societie of Sciences of Norway, Associé Étranger de la Société de l'Anthropologie de Paris, and author of other works of anthropological interest.

"One day the principal man of the locality, who had been very friendly to me, showed me a burial cave. I had persuaded him that it was better for me to take away the bones contained in it in order to keep them in a good house than to let them remain where they were 'killing sheep and making people sick.' 'But why do you want them?' he asked. Having been satisfied on this point he one day led me to a wild, steep arroyo, pointed at its head, and, having thus indicated where the cave was, at once left me. I made my way as best I could up the steep little gorges, accompanied by one of my men. On arriving at the top I found the entrance to the cave completely covered with stones plastered together with mud. A heap of stones was also piled outside against the wall.

The cave I found very small and, contrary to the exaggerated reports of the Indians, it contained only three skeletons. According to the custom prevailing throughout part of the country of the Tarahumares these remains had not been buried. The skeletons were simply lying on their backs from east to west as if looking toward the setting sun. A few crudely made clay vessels of the ordinary Tarahumare type were found alongside them. On gathering the three skulls I was at once struck by a circular hole in the right parietal bone of one of them. As they undoubtedly belonged to the Tarahumares the question at once occurred to me, Can it be possible that this barbaric tribe, not particularly advanced in the arts, was capable of trepanning? The remoteness of the place entirely negatives the suggestion that a civilised surgeon could have had anything to do with it.

The skull, the lower jaw of which is missing, is that of a Tarahumare woman over 50 years of age. The age of the specimen itself is impossible to arrive at on account of the peculiar circumstances in which it was preserved. However, the cranial walls still contained some animal matter, were still somewhat fatty to the touch, and retained some odour. A spindle provided with a whorl made from a piece of pine-bark which was lying among the bones in the cave indicates that the body of this female had not been put there in recent times. This variety of whorl, so far as I can ascertain, has not been observed among the Tarahumares of the present day. It is, indeed, possible that the skeleton may be pre-Columbian.

The skull does not present any deformities or fractures and the singular aperture is almost exactly round, measuring two centimetres in diameter. A careful examination shows that the cut was made a long time—several years in fact—before death. The regularity of the hole indicates beyond doubt that it is artificial.

Another skull, taken from a burial cave near Nararachic, is also that of a female and the opening here, too, is in the parietal bone and in almost the same place as the opening in the first skull described. In this second specimen the cavity is almost filled in with new bone, and as in this instance the edges are very regular and uniform and distinctly beveled, they show that the operation was performed by scraping. This cannot be said of the first specimen found. The almost circular form of the opening and its perpendicular walls prove conclusively that in this instance the surgeon did not employ the simple method of scraping the bone. I have never found among the Tarahumares any implement with which such an operation could have been performed. Possibly it was done with a kind of flint wimble with three teeth, much like the instrument used to-day in trepanning by the Berbers in l'Aurès, who cure even headaches by this method. It is, of course, impossible to say now whether the ancients performed the operation simply to relieve the patient of bone splinters, pus, blood, &c., pressing on the brain, or whether it was done to let out an evil spirit. It is the first time that cases of trepanning have been found in Mexico."

The Tarahumares, it should be added, are a tribe inhabiting the Sierra del Norte, a continuation of the Rocky Mountains stretching through the greater part of Mexico into Central and South America.

TOTTENHAM'S HOSPITAL AND HOLLOWAY'S PILLS.

PERHAPS our readers will hardly see the connexion at first sight between the two portions of the above suggestive title. Evidently those responsible for the issue of a cheap handbill advertising the Tottenham Hospital Carnival to be held on July 16th think differently, for on one side of the handbill the Tottenham Hospital appeals for donations to make good a deficit of £2000 and on the other side appears an advertisement of Holloway's pills and ointment. Thus occurs the very unusual and incongruous association appearing in the heading of this paragraph and the preposterous spectacle of an orthodox hospital advertising a heterodox preparation. Perhaps, however, this has been done to show to what depths they have descended in the practice of economy and to emphasise the dire straits of the hospital, but such an undesirable confederacy and lack of discretion is hardly the best way to enlist the sympathy and the support of long-suffering members of the medical profession, because, as we recently read in our contemporary the *Evening News*, under the heading of New Proverbs "Quacks are stubborn things."

CHLORETONE IN SEASICKNESS.

To the Editors of THE LANCET.

SIRS,—A short time ago I read in THE LANCET some correspondence relating to the usefulness of chloretone in seasickness. Personally I am a wretched sailor and as I was about to take a fortnight's cruise Messrs. Parke, Davis, and Co. supplied me with capsules containing five grains of the drug. It was not long after we had lost sight of land that the horrible feeling in the epigastrium began to make itself felt, so I promptly took ten grains of chloretone. In half an hour all nausea had disappeared and I went below and had a good dinner. Before turning in for the night I took another capsule and after a good night's rest had a splendid breakfast. After three days we had some rough sea when it was almost impossible to stand on deck. I took five grains of chloretone every two hours for six hours. I had not the slightest nausea; most of the passengers, stewards, and stewardesses were sick and I was one of the few who went down to dinner, which, I may say, we had to partake of under difficulties. There is no doubt that the drug does increase the appetite and I certainly found no bad effects from its use. Many times I have been in the North Sea, but never once before without having several hours of severe sickness, and during the whole of this last cruise, after taking chloretone, there was not the slightest sign of seasickness.

I am, Sirs, yours faithfully,

July 7th, 1903. M.R.C.S.

Impartial has omitted to supply us with his name and address and does not sufficiently describe the perambulator to make clear his allusions.

COMMUNICATIONS not noticed in our present issue will receive attention in our next.

Medical Diary for the ensuing Week.

OPERATIONS.

METROPOLITAN HOSPITALS.

MONDAY (13th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), St. George's (2 P.M.), St. Mary's (2.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), Chelsea (2 P.M.), Samaritan (Gynæcological, by Physicians, 2 P.M.), Soho-square (2 P.M.), Royal Orthopædic (2 P.M.), City Orthopædic (4 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Royal Free (2 P.M.), Guy's (1.30 P.M.).

TUESDAY (14th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Westminster (2 P.M.), West London (2.30 P.M.), University College (2 P.M.), St. George's (1 P.M.), St. Mary's (1 P.M.), St. Mark's (2.30 P.M.), Cancer (2 P.M.), Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Royal Ear (3 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Soho-square (2 P.M.).

WEDNESDAY (15th).—St. Bartholomew's (1.30 P.M.), University College (2 P.M.), Royal Free (2 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. Thomas's (2 P.M.), London (2 P.M.), King's College (2 P.M.), St. George's (Ophthalmic, 1 P.M.), St. Mary's (2 P.M.), National Orthopædic (10 A.M.), St. Peter's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Gt. Ormond-street (9.30 A.M.), Gt. Northern Central (2.30 P.M.), Westminster (2 P.M.) Metropolitan (2.30 P.M.), London Throat (9.30 A.M.), Cancer (2 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

THURSDAY (16th).—St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), University College (2 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), London (2 P.M.), King's College (2 P.M.), Middlesex (1.30 P.M.), St. Mary's (2.30 P.M.), Soho-square (2 P.M.), North-West London (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (Gynæcological, 2.30 P.M.), Metropolitan (2.30 P.M.), London Throat, (9.30 A.M.), St. Mark's (2 P.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

FRIDAY (17th).—London (2 P.M.), St. Bartholomew's (1.30 P.M.), St. Thomas's (3.30 P.M.), Guy's (1.30 P.M.), Middlesex (1.30 P.M.), Charing Cross (3 P.M.), St. George's (1 P.M.), King's College (2 P.M.), St. Mary's (2 P.M.), Ophthalmic (10 A.M.), Cancer (2 P.M.), Chelsea (2 P.M.), Gt. Northern Central (2.30 P.M.), West London (2.30 P.M.), London Throat (9.30 A.M.), Samaritan (9.30 A.M. and 2.30 P.M.), Throat, Golden-square (9.30 A.M.), City Orthopædic (2.30 P.M.), Soho-square (2 P.M.).

SATURDAY (18th).—Royal Free (9 A.M.), London (2 P.M.), Middlesex (1.30 P.M.), St. Thomas's (2 P.M.), University College (9.15 A.M.), Charing Cross (2 P.M.), St. George's (1 P.M.), St. Mary's (10 P.M.), Throat, Golden-square (9.30 A.M.), Guy's (1.30 P.M.).

At the Royal Eye Hospital (2 P.M.), the Royal London Ophthalmic (10 A.M.), the Royal Westminster Ophthalmic (1.30 P.M.), and the Central London Ophthalmic Hospitals operations are performed daily.

SOCIETIES.

TUESDAY (14th).—SOUTH-WEST LONDON MEDICAL SOCIETY (Bolingbroke Hospital, Wandsworth Common).—8.30 P.M. Sir Victor Horsley: The Cure of Hernia, with Special Reference to a New Operation for the Cure of Femoral Hernia. (Annual Bolingbroke Lecture.)

SOCIETY FOR THE STUDY OF INEBRIETY (Rooms of the Medical Society of London, 11, Chandos-street, Cavendish-square, W.).—3.30 P.M. Council Meeting. 4 P.M. Discussion on Inebriety in Women, and its Influence on Child Life (opened by Miss F. Zanetti). Various aspects of the subject will be dealt with by Mr. T. Holmes, Dr. H. Littlejohn, Dr. G. F. McCleary, Dr. C. Shaw, Dr. Sullivan, Dr. W. Westcott, and Rev. B. Waugh.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

MONDAY (13th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. G. Little: Clinique. (Skin.) 5.15 P.M. Dr. J. E. Squire: The Clinical Varieties of Pneumonia.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. Shuter: Gas Administration.

TUESDAY (14th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Dr. W. Ewart: Clinique. (Medical.) 5.15 P.M. Dr. F. J. Smith: Bronchitis and Emphysema.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. Shuter: Gas Administration.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC (Queen-square, Bloomsbury).—3.30 P.M. Dr. A. Turner: Prognosis of Epilepsy.

WEDNESDAY (15th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. P. J. Freyer: Clinique. (Surgical.) 5.15 P.M. Dr. C. O. Hawthorne: Pulse Tracings and their Clinical Significance.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. Russell: Some Diseases of the Nervous System.

HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (Brompton).—4 P.M. Dr. Habershon: Cases of Mitral Stenosis.

THURSDAY (16th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. Hutchinson: Clinique. (Surgical.) 5.15 P.M. Dr. C. O. Hawthorne: Pulse Tracings and their Clinical Significance.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Mr. Baldwin: Treatment of Some Injuries and Emergencies.

MOUNT VERNON HOSPITAL FOR CONSUMPTION AND DISEASES OF THE CHEST (7, Fitzroy-square, W.).—4 P.M. Mr. R. Lake: Laryngeal Tuberculosis. (Post-Graduate Course.)

THE HOSPITAL FOR SICK CHILDREN (Gt. Ormond-street, W.C.).—4 P.M. Dr. Batten: Demonstration of Selected Cases.

GUY'S HOSPITAL MEDICAL SCHOOL—UNIVERSITY OF LONDON (Physiological Theatre).—4 P.M. Dr. E. W. Ainley Walker: Recent Work upon the Nature of Immunity. (Gordon Lecture.)

FRIDAY (17th).—MEDICAL GRADUATES' COLLEGE AND POLYCLINIC (22, Chenies-street, W.C.).—4 P.M. Mr. W. Dodd: Clinique. (Eye.) 5.15 P.M. Dr. J. E. Squire: Pleural Effusion, Causes and Treatment.

POST-GRADUATE COLLEGE (West London Hospital, Hammersmith-road, W.).—5 P.M. Dr. Russell: Some Diseases of the Nervous System.

LONDON HOSPITAL MEDICAL COLLEGE (University of London) (New Clinical Theatre).—4 P.M. Mr. J. Hutchinson: Diseases in India—Practical Measures in Relation to Disease in India.

EDITORIAL NOTICES.

IT is most important that communications relating to the Editorial business of THE LANCET should be addressed *exclusively* "TO THE EDITORS," and not in any case to any gentleman who may be supposed to be connected with the Editorial staff. It is urgently necessary that attention be given to this notice.

It is especially requested that early intelligence of local events having a medical interest, or which it is desirable to bring under the notice of the profession, may be sent direct to this office.

Lectures, original articles, and reports should be written on one side of the paper only, AND WHEN ACCOMPANIED BY BLOCKS IT IS REQUESTED THAT THE NAME OF THE AUTHOR, AND IF POSSIBLE OF THE ARTICLE, SHOULD BE WRITTEN ON THE BLOCKS TO FACILITATE IDENTIFICATION.

Letters, whether intended for insertion or for private information, must be authenticated by the names and addresses of their writers—not necessarily for publication.

We cannot prescribe or recommend practitioners.

Local papers containing reports or news paragraphs should be marked and addressed "To the Sub-Editor."

Letters relating to the publication, sale and advertising departments of THE LANCET *should be addressed "To the Manager."*

We cannot undertake to return MSS. not used.

MANAGER'S NOTICES.

THE INDEX TO THE LANCET.

THE Index to Vol. I. of 1903, which was completed with the issue of June 27th, and the Title-page to the Volume, were given in THE LANCET of July 4th.

VOLUMES AND CASES.

VOLUMES for the first half of the year 1903 are now ready. Bound in cloth, gilt lettered, price 18*s.*, carriage extra.

Cases for binding the half-year's numbers are now ready. Cloth, gilt lettered, price 2*s.*, by post 2*s.* 3*d.*

To be obtained on application to the Manager, accompanied by remittance.

TO SUBSCRIBERS.

WILL Subscribers please note that only those subscriptions which are sent direct to the Proprietors of THE LANCET at their Offices, 423, Strand, W.C., are dealt with by them? Subscriptions paid to London or to local newsagents (with none of whom have the Proprietors any connexion whatever) do not reach THE LANCET Offices, and consequently inquiries concerning missing copies, &c., should be sent to the Agent to whom the subscription is paid, and *not* to THE LANCET Offices.

Subscribers, by sending their subscriptions direct to THE LANCET Offices, will ensure regularity in the despatch of their Journals and an earlier delivery than the majority of Agents are able to effect.

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Subscriptions (which may commence at any time) are payable in advance. Cheques and Post Office Orders (crossed "London and Westminster Bank, Westminster Branch") should be made payable to the Manager, MR. CHARLES GOOD, THE LANCET Offices, 423, Strand, London, W.C.

SUBSCRIBERS ABROAD ARE PARTICULARLY REQUESTED TO NOTE THE RATES OF SUBSCRIPTIONS GIVEN ABOVE. It has come to the knowledge of the Manager that in some cases higher rates are being charged, on the plea that the heavy weight of THE LANCET necessitates additional postage above the ordinary rate allowed for in the terms of subscriptions. Any demand for increased rates, on this or on any other ground, should be resisted. The Proprietors of THE LANCET have for many years paid, and continue to pay, the whole of the heavy cost of postage on overweight foreign issues; and Agents are authorised to collect, and do so collect, from the Proprietors the cost of such extra postage.

The Manager will be pleased to forward copies direct from the Offices to places abroad at the above rates, whatever be the weight of any of the copies so supplied. Address—THE MANAGER, THE LANCET OFFICES, 423, STRAND, LONDON, ENGLAND.

METEOROLOGICAL READINGS.

(Taken daily at 8.30 a.m. by Steward's Instruments.)

THE LANCET Office, July 9th, 1903.

Date.	Barometer reduced to Sea Level and 32° F.	Direction of Wind.	Rain-fall.	Solar Radiation Vacuo.	Maximum Temp. Shade.	Min. Temp.	Wet Bulb.	Dry Bulb.	Remarks at 8.30 A.M.
July 3	29·99	W.	...	126	73	62	60	67	Cloudy
,, 4	30·12	W.	...	121	72	55	56	62	Cloudy
,, 5	30·06	S.W.	...	106	71	56	53	60	Cloudy
,, 6	29·76	N.W.	...	121	63	57	53	61	Cloudy
,, 7	30·04	N.W.	...	113	68	50	50	56	Cloudy
,, 8	30·22	N.	...	122	72	51	52	57	Fine
,, 9	30·25	N.	...	122	77	57	63	70	Cloudy

During the week marked copies of the following newspapers have been received: *The Western Gazette, Straits Echo (Penang), Aberdeen Daily Journal, Westminster Gazette, West Cumberland Times, Carlisle Patriot, Carlisle Journal, Dublin Evening Mail, Sussex Daily News, Aberdeen Free Press (Weekly), Surrey Advertiser, Bristol Mercury, Dublin Express, Morning Post, Sanitary Record, Local Government Chronicle, Mining Journal, Hertfordshire Mercury, Burton Chronicle, Army and Navy Gazette, &c.*

Communications, Letters, &c., have been received from—

A.—Mr. G. A. Adeney, Lond.; M. J. Astier, Asnières, France; Messrs. Allen and Hanburys, Lond.; Apollinaris Co., Lond.; Messrs. Armour and Co., Lond.; Mr. G. Ambrose, Lond.; Dr. J. Mitford Atkinson, Hong Kong; Mr. Gilbert J. Arnold, Torquay; Mr. Algernon Ashton, Lond.; Dr. A. G. Auld, Lond.; Dr. A.; Ancoats Hospital, Manchester, Secretary of.

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